Kentucky Public Pension Work Group

State Funding

FINAL REPORT:
10/30/08

State Budget Director Mary Lassiter, Chair

Subcommittee Staff
Greg Haskamp, Finance Administration Cabinet

Table of Contents

EXECUTIVE SUMMARY

Executive Summary

Nationwide, public pension plans unfunded liabilities for pension and healthcare benefits are estimated at $731 billion dollars, according to the Pew Charitable Trusts Center on the States.[1] Both nationally and here in the Commonwealth of Kentucky, the need to fairly and wisely manage post-retirement benefits is integral to the ability to fund competing needs including education, public services and infrastructure, . In recognition of the fiscal responsibility that is owed to both taxpayers, and to the public employees that have earned their benefits through years of service, Governor Steve Beshear exerted bipartisan leadership in steering the successful passage of pension reform legislation that was passed by the First Extraordinary Session of the 2008 General Assembly, and created the Kentucky Public Pension Working Group to recommend strategies on preparing the state to meet these future obligations while maintaining benefits for existing retirees.

As of June 30, 2007, the estimated unfunded accrued liability for both the Kentucky Retirement Systems (KRS) and the Kentucky Teachers' Retirement System (KTRS) is $26 billion for both pension and medical benefits. The KRS, which is comprised of the Kentucky Employees Retirement System (KERS), the County Employees Retirement System (CERS), and the State Police Retirement System (SPRS), have total assets valued at $16.959 billion. KERS hazardous and non-hazardous are 58.4% funded for pension benefits and 15.3% funded for medical benefits; CERS hazardous and non hazardous are 80.1% funded for pension benefits, and 29.6% funded for medical benefits; and SPRS is 63.7% funded for pension benefits and 26.6% funded for medical benefits.[2] The Kentucky Teachers' Retirement System total assets are valued at $15.425 billion. KTRS is 71.9% funded for retiree pension benefits and maintains a pay-as-you-go medical benefit that is 2.4% funded.[3]

The State Funding Subcommittee of the Kentucky Public Pension Working Group issues this attached report with the expressed goal of "Providing recommendations to the Governor for a long-term funding strategy for pension and healthcare benefits, with the goal of ensuring adequate funding of the actuarially required contributions to the state administered retirement systems by 2025." The subcommittee worked over four months with a diverse group of legislators, stakeholders, experts and administrators to make recommendations and hear from all interested parties on the issues of funding retirement benefits. This report contains a record of all testimony and all options recommended by subcommittee members.

---

[1] Pew Center on the States. "Promises with a Price: Public Sector Retirement Benefits." 2007.
[2] KRS Comprehensive Annual Financial Report (CAFR) 2007.
[3] KTRS Presentation to Subcommittee August 22, 2008.

In addition to the attached report, the work of the Funding Subcommittee cannot be separated from the schedule of payments that was included in House Bill 1. If that schedule is adhered to, actuarial analysis shows that "...No fund is expected to be depleted based on the provisions of HB 1." Also included in HB 1, is a pledge of intent from the General Assembly to adhere to the funding schedule included in the bill. It is only through the fiscal restraint and leadership indicated by that intent, and the continuation of those sentiments toward the options listed in this report, that the state will make real progress toward funding its future and inviolable obligations.

The Subcommittee proposes several policy options for consideration by the Executive and Legislative branches. These options are fully explored in the report, and include the following:

For the Kentucky Retirement Systems (KRS):

1. Projected amounts of additional funding needed to adhere to the targeted funding requirements in House Bill 1 should be publicized as early as they are available.
2. KRS should conduct a full experience study prior to the actuarial valuation as of June 30, 2009 upon which the ARC will be based for the FY 2010 – 2012 biennial budget.
3. The actuarial valuation, currently required to be conducted annually, should be conducted every two years to coincide with the biennial budget process.

For the Kentucky Teachers' Retirement System (KTRS):

1. Measures should be taken to both address the accumulated costs of health care that have been paid by the pension fund, and address the ongoing increasing costs of providing health care benefits to retirees. The Budget of the Commonwealth should provide adequate funding to eventually eliminate the practice of diverting pension funds to pay for health care expenses.
2. As a component of a comprehensive funding plan, the Commonwealth should consider issuing bonds to pay off all, or a portion, of the accumulated costs of the health care benefits over the last three biennial budgets which can be a more cost efficient method to paying for these obligations than the current budgeting practice. However, bonds should only be issued if the market conditions are favorable resulting in:

a. The borrowing costs being less than the current budgeted interest costs assumed at the actuarial rate of return of 7.5%; and

b. The investment return on the proceeds of the bonds can reasonably be expected to exceed the cost of the borrowing over the life of the borrowing.

(Note: At the time of the issuance of this report, market conditions are not conducive to the successful issuance of pension obligation bonds.)

3. If bonding is utilized to pay a portion of the unfunded liability, an independent investment advisory committee should be established to assist KTRS with the investment allocation and cash management issues.

For both the KRS and the KTRS:

1. The Commonwealth should employ an actuary to review the assumptions used by the KRS and KTRS actuaries in the biennial valuation process and advise as to their reasonableness.
2. Both KRS and KTRS should implement an independent actuarial audit every four years to review the actuarial assumptions and performance of the firms employed by the systems.
3. Measures should be taken to address the ongoing increasing costs of providing health care benefits to retirees.

MISSION OF THE SUBCOMMITTEE

Mission of the Subcommittee

As stated in the Executive Order:

"Providing recommendations to the Governor for a long-term funding strategy for pension and health care benefits, with the goal of ensuring adequate funding of the actuarially required contributions to the state administered retirement systems by 2020 and phasing into the actuarially required contribution rates for the Kentucky Employees Retirement System and the State Police Retirement System as follow:

i. For the employer contribution rate for the Kentucky Employees Retirement System pertaining to nonhazardous employees, to work towards the goal of contributing eighty-five percent (85%) of the actuarially required contribution for fiscal year beginning July 1, 2020.

ii. For the employer contribution rate for the Kentucky Employees Retirement System pertaining to hazardous employees, to work towards the goal of contributing ninety-five percent (95%) of the actuarially required contribution for fiscal year beginning July 1, 2016.

iii. For the employer contribution rate for the State Police Retirement System, to work towards the goal of contributing ninety-five percent (95%) of the actuarially required contribution for fiscal year beginning July 1, 2017."

House Bill 1 enacted in the First Extraordinary Session of the 2008 General Assembly included the following provisions to address the funding plan for the employer contribution rates for the state funded systems of the Kentucky Retirement Systems:

"(5) (a) It is the intent of the General Assembly to begin phasing into the full actuarially required contribution rates for the Kentucky Employees Retirement System and the State Police Retirement System.

(b) For the employer contribution rate for the Kentucky Employees Retirement System pertaining to nonhazardous employees, it is the intent of the General Assembly to work towards the goal of contributing the actuarially required employer contribution as follows:

1. Forty-four percent (44%) of the actuarially required contribution for

the fiscal year beginning July 1, 2010;

2. *Forty-eight percent (48%) of the actuarially required contribution for the fiscal year beginning July 1, 2011;*

3. *Fifty-three percent (53%) of the actuarially required contribution for the fiscal year beginning July 1, 2012;*

4. *Fifty-seven percent (57%) of the actuarially required contribution for the fiscal year beginning July 1, 2013;*

5. *Sixty-one percent (61%) of the actuarially required contribution for the fiscal year beginning July 1, 2014;*

6. *Sixty-five percent (65%) of the actuarially required contribution for the fiscal year beginning July 1, 2015;*

7. *Sixty-nine percent (69%) of the actuarially required contribution for the fiscal year beginning July 1, 2016;*

8. *Seventy-three percent (73%) of the actuarially required contribution for the fiscal year beginning July 1, 2017;*

9. *Seventy-seven percent (77%) of the actuarially required contribution for the fiscal year beginning July 1, 2018;*

10. *Eighty-one percent (81%) of the actuarially required contribution for the fiscal year beginning July 1, 2019;*

11. *Eighty-five percent (85%) of the actuarially required contribution for the fiscal year beginning July 1, 2020;*

12. *Eighty-nine percent (89%) of the actuarially required contribution for the fiscal year beginning July 1, 2021;*

13. *Ninety-three percent (93%) of the actuarially required contribution for the fiscal year beginning July 1, 2022;*

14. *Ninety-seven percent (97%) of the actuarially required contribution for the fiscal year beginning July 1, 2023; and*

15. One-hundred percent (100%) of the actuarially required contribution for the fiscal year beginning July 1, 2024.

(c) For the employer contribution rate for the Kentucky Employees Retirement System pertaining to hazardous employees, it is the intent of the General Assembly to work towards the goal of contributing the full actuarially required employer contribution as follows:

1. Seventy-six percent (76%) of the actuarially required contribution for the fiscal year beginning July 1, 2010;

2. Seventy-nine percent (79%) of the actuarially required contribution for the fiscal year beginning July 1, 2011;

3. Eighty-three percent (83%) of the actuarially required contribution for the fiscal year beginning July 1, 2012;

4. Eighty-six percent (86%) of the actuarially required contribution for the fiscal year beginning July 1, 2013;

5. Eighty-nine percent (89%) of the actuarially required contribution for the fiscal year beginning July 1, 2014;

6. Ninety-two percent (92%) of the actuarially required contribution for the fiscal year beginning July 1, 2015;

7. Ninety-five percent (95%) of the actuarially required contribution for the fiscal year beginning July 1, 2016;

8. Ninety-eight percent (98%) of the actuarially required contribution for the fiscal year beginning July 1, 2017; and

9. One-hundred percent (100%) of the actuarially required contribution the for fiscal year beginning July 1, 2018.

(c) For the employer contribution rate for the State Police Retirement System, it is the intent of the General Assembly to work towards the goal of contributing the full actuarially required employer contribution as follows:

1. *Sixty percent (60%) of the actuarially required contribution for the fiscal year beginning July 1, 2010;*
2. *Sixty-five percent (65%) of the actuarially required contribution for the fiscal year beginning July 1, 2011;*
3. *Seventy percent (70%) of the actuarially required contribution for the fiscal year beginning July 1, 2012;*
4. *Seventy-five percent (75%) of the actuarially required contribution for the fiscal year beginning July 1, 2013;*
5. *Eighty percent (80%) of the actuarially required contribution for the fiscal year beginning July 1, 2014;*
6. *Eighty-five percent (85%) of the actuarially required contribution for the fiscal year beginning July 1, 2015;*
7. *Ninety percent (90%) of the actuarially required contribution for the fiscal year beginning July 1, 2016;*
8. *Ninety-five percent (95%) of the actuarially required contribution for the fiscal year beginning July 1, 2017;*
9. *Ninety-eight percent (98%) of the actuarially required contribution for the fiscal year beginning July 1, 2018; and*
10. *One-hundred percent (100%) of the actuarially required contribution for the fiscal year beginning July 1, 2019."*

As a result of the enactment of these provisions, the Subcommittee on State Funding at its August 7, 2008 meeting amended its mission statement to the following:

"Providing recommendations to the Governor for a long-term funding strategy for pension and healthcare benefits, with the goal of ensuring adequate funding of the actuarially required contributions to the state administered retirement systems by 2025."

MEMBERS OF THE SUBCOMMITTEE

Members of the Subcommittee

- Mary Lassiter, State Budget Director, Chair
- David Adkisson, President and CEO, Kentucky Chamber of Commerce
- Mary Ann Blankenship, Kentucky Education Association
- Mike Burnside, Executive Director, Kentucky Retirement Systems
- Bob Gray, Taylor-Gray Associates, representing Kentucky Chamber of Commerce
- Gary Harbin, Executive Secretary, Kentucky Teachers' Retirement System
- Billy Hunt, Retired member KTRS
- Lee Jackson, Kentucky Association of State Employees
- Brent McKim, Jefferson County Teachers' Association
- Representative Harry Moberly, Chairman, Interim Joint Committee on Appropriations and Revenue
- Keith Powell, Keith Powell & Associates, Ltd, Actuary
- Bob Sexton, Executive Director, Prichard Committee for Academic Excellence
- Darrell Treece, Superintendent, Adair County Schools and Board Member of the Kentucky Association of School Superintendents
- Ruth Webb, Legislative Research Commission
- Patrick Welsh, Actuary (Resigned from the Workgroup)
- Mark Whelan, Kentucky Teachers' Retirement System

Schedule of Meetings

- June 3, 2008
- August 7, 2008
- August 22, 2008
- September 12, 2008
- October 20, 2008

SUMMARY OF TESTIMONY

Summary of Testimony Provided to the Subcommittee

June 3, 2008 Meeting

An informal organizational discussion was held by the State Funding Subcommittee following the adjournment of the full Public Pension Working Group. Mary Lassiter, Chairperson, expressed that the Subcommittee's tasks include doing research and providing recommendations to the full Working Group on the following issues:

- Providing recommendations to the Governor for a long-term funding strategy for pension and health care benefits, with the goal of ensuring adequate funding of the actuarially required contributions to the state-administered retirement systems by 2020, and phasing into adequate actuarially required contribution rates for the Kentucky Employees Retirement System and the State Police Retirement System as follows:
  - For the employer contribution rate for the Kentucky Employees Retirement System pertaining to nonhazardous employees, to work toward the goal of contributing eighty-five percent (85%) of the actuarially required contribution for fiscal year beginning July 1, 2020;
  - For the employer contribution rate for the Kentucky Employees Retirement System pertaining to hazardous employees, to work toward the goal of contributing ninety-five percent (95%) of the actuarially required contribution for fiscal year beginning July 1, 2016; and
  - For the employer contribution rate for the State Police Retirement System, to work toward the goal of contributing ninety-five percent (95%) of the actuarially required contribution for fiscal year beginning July 1, 2017.
- There was brief discussion about whether it is prudent to include a schedule for increased employer contributions in permanent law.
- The Kentucky Teachers' Retirement System (KTRS) has expressed a desire to change the statutory employer contribution rate from a fixed percentage to an amount determined by its actuary and recommended by the Board of Trustees, similar to the statutory requirements for the Kentucky Employee Retirement System (KERS).
- Review and discussion about an approach to fund the health insurance fund of the KTRS, to reduce and eventually eliminate the practice of diverting funds from the pension fund to pay for health care benefits for KTRS retirees.

Ms. Lassiter expressed that the Subcommittee would not meet again until after the potential special session on pension issues had occurred or adjourned this summer.

August 7, 2008 Meeting

The focus of the August 7, 2008 meeting was to review the provisions of HB 1 of the First Extraordinary Session of the 2008 General Assembly that relate to the funding plan for the Kentucky Employee Retirement Systems. Mr. Bill Thielen, Chief Operations Officer for the Kentucky Retirement Systems and Mr. Tom Cavanaugh, Cavanaugh Macdonald Consulting, LLC provided testimony to the Subcommittee. The primary issues addressed included the following:

Presented by Mr. Bill Thielen,
Chief Operations Officer for the Kentucky Retirement Systems

- The funding targets in HB 1 are expressed as a percentage of the actuarially required contribution rate (ARC). Figure 1 reflects the targeted funding levels for the ARC in the enacted budget for Fiscal Year 2009.

Figure 1

	Valuation Rate*	ARC**	Actual	% of ARC
KERS Nonhazardous	36.92%	28.60%	10.01	35%
KERS Hazardous	34.78%	34.78%	24.35	70%
SPRS	91.93%	60.14%	30.07	50%

* Complies with GASB 43/45 by using a blended 4.5% assumed Rate Of Return on investments for KERS Nonhazardous and SPRS

** KRS Board adopted rates, which are "full funding" rates for KERS Nonhazardous and SPRS calculated by using a 7.75% assumed Rate of Return on investments

- Figure 2 provides the targeted funding levels scheduled to be increased in the enacted budget for Fiscal Year 2010.

Figure 2

	Projected ARC	Actual	% of ARC
KERS Nonhazardous	29.49%	11.61%	39%
KERS Hazardous	32.49%	24.69%	76%
SPRS	61.41%	33.08%	54%

- KRS estimates that the actuarially required contributions for KERS nonhazardous and hazardous and SPRS for FY 2009 are $595.4 million, but that $230.8 million will be provided. Similarly, the estimates for FY 2010 are $620.1 million for the required amount vs. $267.0 million budgeted. (It is noted that all employer contributions for these systems are not reflected in the Budget of the Commonwealth. There are employers who participate in the KRS that are not represented in the Executive, Legislative, or Judicial Branch budgets.)

Presentation joined by Thomas Cavanaugh, consulting actuary for the Kentucky Retirement Systems, Founder and CEO of Cavanaugh Macdonald Consulting, LLC.

- To help the Subcommittee understand the implications of the funding targets included in HB 1, Mr. Cavanaugh provided a primer on the fundamentals of retirement liability funding and how the actuarially required contribution rate is calculated.

- Mr. Cavanaugh also gave a brief overview of the job which actuaries perform in order to derive funding targets. In summary:
  - Actuaries utilize certain assumptions in order to project future costs
  - "True" or future costs are estimated based on expenses and the value of benefits paid overtime
  - Once the "true" cost is determined, actuaries then create a funding schedule to pay for those costs overtime.

- The basic retirement system funding equation:

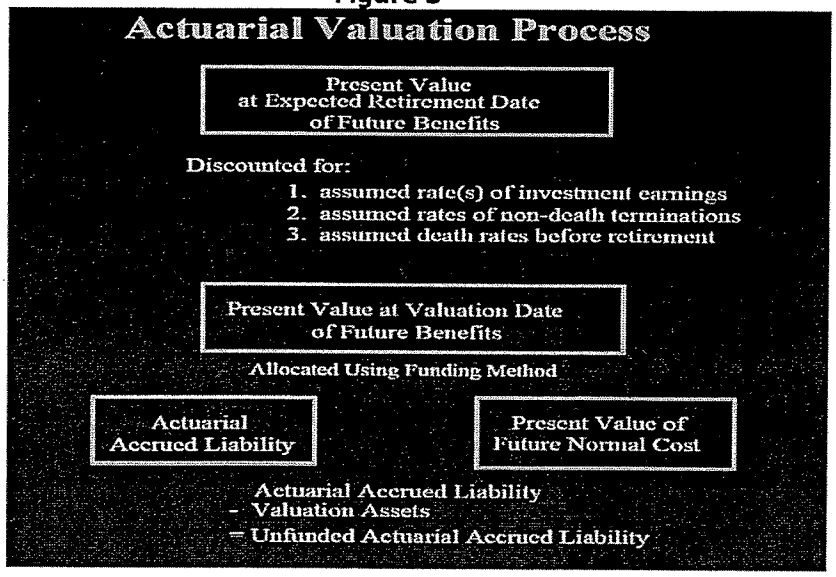
  Contributions + Investment income = Benefits paid + Expenses

- The funding equation is also impacted by degree. For example, the larger total amount of money allocated to investment income, the lower the contribution rate. The Commonwealth faces a problem where underfunding means there are fewer dollars available for investment income, which in turn causes the contribution rates to increase.
- With an advance funded system, such that assets are being built up for individual retirees, for every dollar which is paid out to retirees roughly $0.70-0.80 comes from investment earnings, and $0.20-$0.30 comes from employee and employer contributions.
- Mr. Thielen clarified that for KRS retirees roughly 16% percent of their retirement is derived from employee contributions, 20% from employer contributions, and 64% comes from investment earnings. This illustrates the importance of having the contributions up front for investment.

- There are two fundamentally different methods of financing retirement benefits:
  - "Owe as you go." The current generation pays the benefits of the prior generation.
  - "Save as you go." The current generation saves money for its own retirement; as the prior generation did the same. Most public pension systems, including the KRS, employ this method.

- The calculation of the actuarially required contribution rate begins with the actuarial valuation to determine the amount of the unfunded actuarial accrued liability. Figure 3 depicts the actuarial valuation process as described by Mr. Cavanaugh.

Figure 3



- Numerous assumptions must be made to complete the actuarial valuation process.
  - Decremental Assumptions include withdrawals, death while active, disability, retirement and death after retirement.
  - Economic Assumptions include the rate of inflation, real return on assets, salary increases and cost of living adjustments on benefits.

- The valuation results are expressed in two categories:
  - **Normal cost** represents the value of this year's expected benefit accruals.
  - **Unfunded liability** represents the value of accrued liability from past periods which are not covered by current assets of the system.

- Causes of unfunded actuarial accrued liabilities include:
  - Granting initial benefits or granting benefit increases for service already rendered.
  - Actual experience which is less favorable than assumed. Examples include:
    - Higher salary increases
    - Earlier retirement dates
    - Lower death rates
    - Lower rates of investment earnings
    - Lower rates of non-death terminations
    - Contributions less than required.

- The ARC rate represents the percentage of projected payroll that is necessary to amortize the actuarially accrued unfunded liability over a set amount of time, usually thirty (30) years for public pension systems.

- The funding ratio and the actuarially required contribution rate are not the same thing. Paying one hundred percent (100%) of the ARC does not necessarily mean one hundred percent funding. The funding ratio is a measure of funding progress while the ARC is the current year funding requirement.

- The funding plan in HB 1 will result in an increasing level of employer contributions. However, the unfunded actuarial liability and therefore the ARC will continue to grow until the Commonwealth is fully contributing the ARC rate because the "unfunded" portion of the rate will add to the unfunded liability of the retirement system.

- The Commonwealth in HB 1 has committed to an increasing percentage of an increasing but unknown amount of funding over the next fifteen years.

- The actuarial analysis of HB 1 prepared by Cavanaugh Macdonald at the time of its passage reflected that if the contribution rates in the bill are adhered to, all of the funds are expected to have sufficient monies to pay benefits until the point in time when each reaches a contribution level of 100% of the ARC. Thus, no fund is expected to be depleted based on the provisions of HB 1.[4] (See Appendix A for a copy of this analysis.)

- Based upon the analysis of the bill, staff of the Legislative Research Commission prepared a fiscal note on HB 1[5] that estimated the increased amount of employer contributions required each fiscal year over the next eight years is approximately $52.8 million, of which it is estimated that approximately one-half would be attributable to the General Fund. (See Appendix B for a copy of this Fiscal Note.)

- Mr. Cavanaugh also discussed the six different methods of actuarial funding, and that these are strictly a function of budgeting practices. However, Mr. Thielen clarified that for KRS a change in the currently used method of using "entry age normal" would require statutory change.

- The question was raised as to what types of events would cause the actuarial method to be re-evaluated Mr. Cavanaugh replied that the total value of future benefits is the same regardless of which method is employed. The importance is to find a method that provides a steady contribution rate for employers as a percentage of payroll.

- Concern was expressed by members of the Subcommittee that there is a perception that the provisions of HB 1 addressed the funding challenges of the retirement systems when significant funding increases will be needed in future years to adequately fund the systems. Members of the Subcommittee requested additional analysis be conducted to estimate the projected unfunded actuarial liability of the Kentucky Retirement Systems assuming the employer contribution rates included in HB 1 are met as reflected in the legislation. Cavanaugh Macdonald[6] prepared the estimates which, consistent with their testimony, reflect that the unfunded actuarial liability will continue to grow over the next ten years. (See Appendix C for a copy of this analysis.)

---

[4] Letter dated June 20, 2008 from Cavanaugh Macdonald Consulting, LLC to William A. Thielen, KRS. Subject: Actuarial Analysis of HB 1.

[5] Commonwealth of Kentucky State Fiscal Note Statement, General Assembly, Legislative Research Commission, 2008 Special Session, 2008 BR No. 0002; House Bill 1, An Act relating to retirement and declaring an emergency.

[6] Letter dated August 28, 2008 from Cavanaugh Macdonald Consulting, LLC to William A. Thielen, KRS. Subject: Ten Year UAL Projection.

August 22, 2008 Meeting

The focus of the August 22, 2008 meeting was funding issues facing the Kentucky Teachers' Retirement System (KTRS). Mr. Gary Harbin, Executive Secretary of the KTRS provided the Subcommittee with background on the KTRS as well as profiled the funding challenges facing the system. Major points to the Subcommittee included the following:

- The KTRS was established in 1938 and funded in 1940 by the General Assembly to address concerns that teachers could not afford to retire, school districts were faced with continued employment of teachers unable to perform effectively, teachers did not participate in Social Security, and the Commonwealth was finding it difficult to attract and retain teachers.
- The defined benefit group retirement plan includes members from one hundred seventy-five school districts, seventeen Department of Education Agencies, five comprehensive universities and the Kentucky Community and Technical College System.
    - As of December 2007, the system included 74,678 Active members, 16,579 Inactive members and 40,347 Retired members, for a total of 131,604 members.
- KTRS is different from other public pension systems in that:
    - Most members are not subject to Social Security.
    - There is a statutory contribution rate.
    - Retiree health benefits are provided.
    - Cost of living adjustments are funded.
- KTRS is different from KRS in three principal ways:
    - Most members are not subject to Social Security;
    - There is a statutory contribution rate rather than a rate that is set by the board; and
    - The health insurance benefits provided by KTRS are not subject to the inviolable contract.
- The primary funding challenge for KTRS is the Medical Benefit Fund, not the Retirement Fund.
    - As shown in Figure 4, as of June 30, 2007, the Retirement Benefit Fund was 71.9% prefunded, but the Medical Benefit Fund was only funded at 2.4%.[7]

[7] KTRS Presentation to Subcommittee August 22, 2008.

Figure 4

KTRS Actuarial Status at June 30, 2007
(thousands)

	Assets	Liabilities	Unfunded	Percent Funded
Retirement Benefit	$ 15,285.0	$ 21,255.0	$ 5,970.0	71.9%
Medical Benefit	$ 140.8	$ 5,928.8	$ 5,788.0	2.4%
Total	$ 15,425.8	$ 27,183.8	$ 11,758.0	

- Funding for retiree medical insurance is on a pay-as-you-go basis.
- 1.5% of payroll is contributed to fund the medical benefit: .75% member contribution plus .75% employer contribution.
- Medical costs and the number of covered retirees have increased beyond the capacity for current contributions to cover them.
- State funding for pension contributions has been redirected to pay for medical insurance costs over the last three biennia.
    - KTRS covers the cost of medical insurance from its pension fund.
    - The enacted budgets for FY 04 – 06, FY 06 -08, and FY 08 – 10 have amortized the cost of medical insurance over a rolling ten year period, effectively repaying the pension fund over time for its outlays for medical insurance for its members. The interest rate used to amortize the payments has been 7.5%, the actuarially assumed discount rate for the KTRS pension fund. The amounts assumed in the enacted budget are reflected in Figure 5[8]:

[8] Office of the State Budget Director

Figure 5

KTRS Health Costs Redirected from Pension Fund

	FY 2005	FY 2006	FY 2007		FY 2008	FY 2009 Estimated	FY 2010 Estimated
Amount "Redirected" from Pension Fund	**$29.2**	**$62.3**	**$73.0**	*	**$125.0**	**$125.0**	**$125.0**
Cumulative Amount		**$91.5**	**$164.5**		**$289.5**	**$414.5**	**$539.5**
(Amortized over 10 Years at 7.5%)							
Cost of "Funds Redirected" from Pension Fund:							
Loan for FY 2005		$4.2	$4.2		$4.2	$4.2	$4.2
Loan for FY 2006			$9.1		$9.1	$9.1	$9.1
Loan for FY 2007					$10.6	$10.6	$10.6
Loan for FY 2008						$18.2	$18.2
Loan for FY 2009							$18.2
Total Cost of "Redirected Funds"	**$0.0**	**$4.2**	**$13.3**		**$23.9**	**$42.1**	**$60.3**
* $12 million from the FY 2006 General Fund Surplus reduced the borrowed amount.							

- The method of funding the medical benefit is having a detrimental impact on the funding status of the pension fund. The most recent KTRS actuarial report recommends an increase in the pension fund employer contribution rate from 1.32% to 1.88% for FY 09 and to 2.46% for FY 10. These increases were not provided in the enacted budget for FY 08 – 10.
- KTRS has made major efforts to contain retirement and healthcare costs:
  - 1992: Implemented self-insurance for retirees.
  - 1996: Joined state health insurance group for pre-65 retirees.
  - 1998: Required full actuarial cost for air-time purchases and instituted "High 3" at age 55 with 27 years of service.
  - 2001: Eliminated double dipping of medical benefits.
  - 2002:
    - Medical insurance benefit reduced for new hires.
    - Return to work salaries limited after required breaks in service.
    - Limit on number of retirees that can return full-time.

        - Benefit multipliers lower for new hires.
        - Field of membership expanded.
        - Disability retirement reformed.
    - 2004:
        - Service credit purchases moved to full actuarial cost.
        - Legislation passed requiring stabilization contribution to Medical Insurance Fund.
    - 2006: Implemented Medicare Part D, saving over $10 million per year.
    - 2007: Implemented Medicare Advantage Private Fee for Service, saving over $11 million per year.
- Trends in KTRS
    - Fewer teachers are retiring
    - People are getting into teaching later in life – average beginning age of teacher has increased from 27 to 31.
    - Most cost increases in the medical insurance fund are attributable to the pre-65 retirees.
- KTRS has a significant economic impact on its members, Kentucky school districts, and the state and local economies.
- KTRS is mindful of the impact that investment returns have on the assets and funding status of the system and has been reviewing its asset allocation methods.
- Mr. Harbin also stated that it may be time to re-evaluate the assumed rate of return on investment.

Members of the Subcommittee expressed concern about the sustainability of the current funding scheme for the medical insurance costs of the KTRS.

Representative Moberly posed the question of what would be done in the next biennium when medical costs can no longer be covered by funds redirected from the pension fund.

Mr. Harbin said that the issue had been discussed internally, and it was a very difficult subject. He reminded the subcommittee that retiree healthcare is not part of the inviolable contract for KTRS.

Mr. Harbin said that retiree medical benefits for those members under age 65 would be the hardest hit. As a result, employers would see members waiting until age 65 to retire in order to capture Medicare benefits.

Mr. Harbin stated that the best situation would be to develop a plan to pre-fund the health benefits. He listed several states including Alabama that had employed innovative solutions to the issue of retiree healthcare.

Significant discussion took place regarding the interest cost accruing on the diverted funding, setting the stage for an in-depth discussion about the feasibility of the Commonwealth issuing bonds at a cheaper rate to pay the accrued liability for medical insurance costs.

September 12, 2008 Meeting

The focus of the September 12, 2008 meeting was a discussion about debt instruments used by governments to address unfunded pension and other post employment benefits (OPEB) liabilities. In the normal course of hiring underwriting firms to aid the Commonwealth in its debt management program, the Office of Financial Management in the Finance and Administration Cabinet issued a request for proposals from firms that could assist the Commonwealth with the evaluation of the feasibility of issuing debt pay unfunded liabilities of the state administered retirement systems. JP Morgan Chase was engaged to assist the Commonwealth in that analysis.

Mr. Tom Howard, Executive Director of the Office of Financial Management provided the Subcommittee with some background on debt management issues related to pension liabilities.

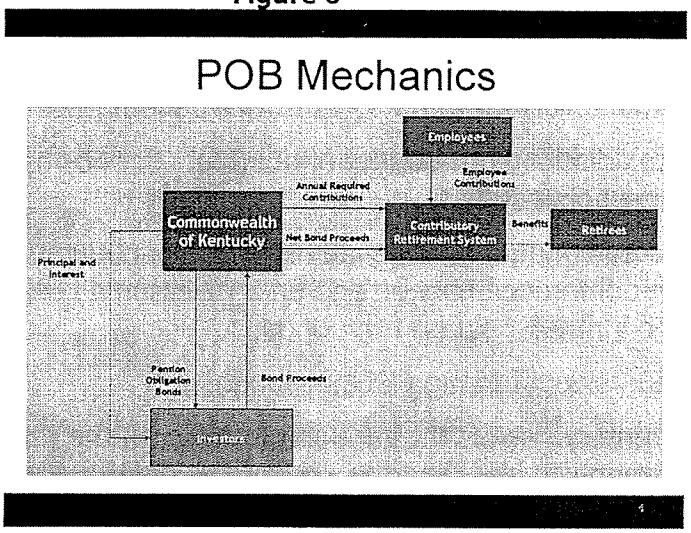
Mr. Robert Doherty, Managing Director; Mr. Josh Benninghoff, Vice President; and Ms. Stephanie Tomblin, Executive Director represented JP Morgan Chase at the meeting to aid the Subcommittee in understanding the issues that should be considered when contemplating the issuance of debt for retirement and OPEB liabilities.

Major points discussed by the presenters included the following:

- Pension obligation bonds (POBs) are debt instruments issued by a governmental entity to fund all or a portion of the unfunded actuarial liabilities for pension and/or OPEBs.
- The issuance of POBs converts a soft balance sheet liability to a hard balance sheet liability, which can reduce flexibility of the governmental entity issuing the bonds.
- Pension Obligation Bonds do not eliminate the Commonwealth's employer contribution; ultimately the Commonwealth is still liable for all full funding of the system, whether through normal cost, unfunded liability, or other post employment benefit cost. The Commonwealth is obliged as the plan sponsor and plan fund guarantor to make the employer contributions.
- The ultimate goal of issuing POBs is to lower the funding cost of the retirement system.
    - Bonds are issued on a taxable basis.
    - The proceeds are deposited into the pension fund and invested by the retirement system.
    - The infusion of cash into the pension fund reduced the unfunded actuarial liability, which reduces the ARC.

- The issuer pays both the debt service on the bonds and a reduced employer contribution rate.
- The borrowing funding strategy is successful if the total cost of the combined payments is less than the ARC payments would have been without the borrowing.
- The mechanics of the process are portrayed in Figure 6.

Figure 6



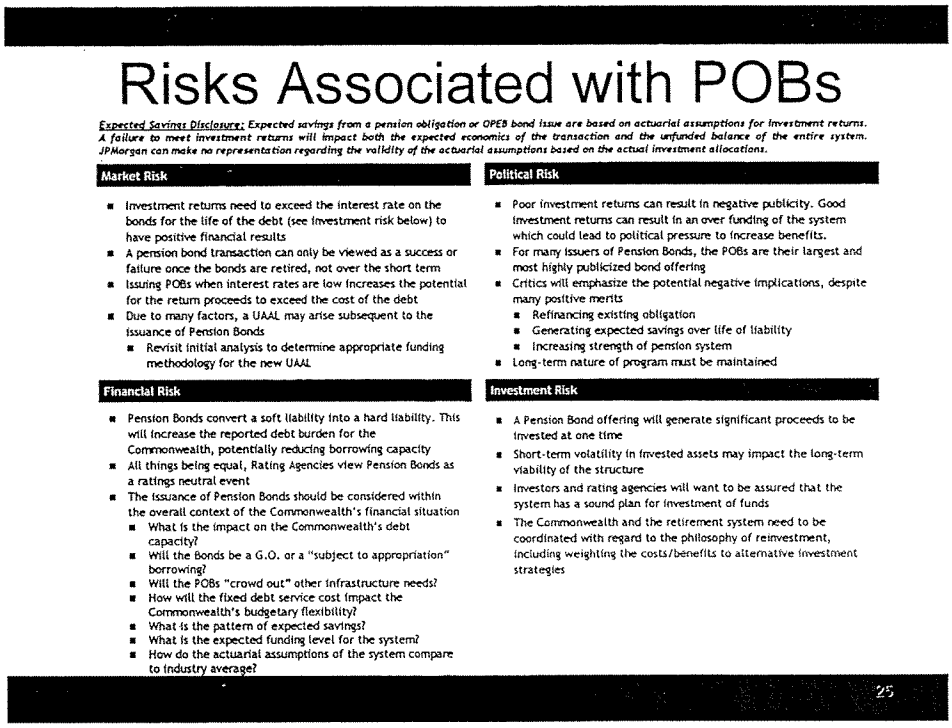
- Several states and local entities have issued POBs to finance pension and OPEB liabilities. The reasons for the issuances by the entities have varied significantly. Some have issued for budgetary relief, and some to reduce the interest cost associated with the liabilities.
  - Success with these issuances has also varied. Several issuers have incurred higher borrowing costs than they are able to earn on the investments made with the proceeds.
- Over 400 POB issues have been executed totaling $57.6 billion since 1986.
- At the time of the presentation, market conditions reflected broad investor demand both domestically and in Europe for POBs.[9]
  - The estimated taxable 20 year funding cost was 5.76%, approximately 100 basis points, or 1% higher than the estimated cost for General Fund supported tax-exempt bonds normally issued by the State Property and Buildings Commission for capital construction projects.

[9] Note: Market conditions changed considerably since this presentation was made in early September. As of October 20, 2008, the estimated interest rate on these bonds would be 8.50% pursuant to the testimony of Tom Howard, Executive Director, Office of Financial Management.

- Annual level debt service per $100 million borrowed would be approximately $13.3 million for 10 year bonds and $8.6 million for 20 year bonds.
- If the actuarially assumed investment returns of 7.5% could be achieved, the Commonwealth would realize 1.74%, or $1.74 million in annual contribution savings ($34.8 million aggregate expected savings over 20 years) per $100 million issued.

- The benefits of issuing POBs include:
  - Provides cash to the retirement system to invest now to lower the unfunded liabilities and meet future benefit payments.
  - Forces discipline to budget annual debt service payments to pay the new obligation.
  - Expected annual funding cost reductions between 15% – 30% due to the difference between actuarially assumed return on investment vs. the interest paid on the bonds.
- Concerns and risks of issuing POBs include:
  - The primary risk is that the actual return on the purchased investments is less than the cost of the debt over the life of the bonds.
  - Reduced budget and financial flexibility in the event of an economic downturn that could impact other service levels.
  - The bonds cannot be issued on a tax-exempt basis under the Internal Revenue Code.
  - Issuance of the bonds would crowd out other capital projects because of overall debt capacity concerns.
  - The risks associated with POBs are listed in Figure 7 and include:
    - Market Risk
    - Political Risk
    - Financial Risk
    - Investment Risk

Figure 7



- Rating agencies that review the Commonwealth's finances and debt instruments evaluate the issuance of POBs from several perspectives.
  - The benchmark funding level for public pension funds is approximately 80% given the continuously moving assumptions associated with pension liabilities.
  - There are no real benchmarks for OPEB liabilities at the present time, due to limited reporting and volatility of these liabilities.
  - A goal to steadily increase the percentage of the OPEB ARC would be viewed favorably.
  - Pension / OPEB bonds can be a reasonable part of the funding solution, with recognition of:
    - Conversion of soft liability to a hard liability.
    - Will POB debt service crowd out other pressing budgetary needs?
    - Will there be checks and balances to avoid a return to inadequate funding levels? This concern is expressed as many states have, when pension system funding levels are improved, enhanced benefits for retirees, which has resulted in larger funding problems in future periods.

        - Has the state conducted a probability analysis that the assumed levels of return on the investments can be achieved vs. the fixed funding cost of the bonds?
        - The use of the proceeds is the key issue: will the proceeds be used to pay current benefits, such as a payment holiday?
        - POBs will be included in all of the rating services' calculations of the Commonwealth's net tax-supported debt.
            - Can the Commonwealth afford POBs and maintain its existing rating?
        - The use of POBs alone should not result in a rating action if the funding plan is sound and well communicated.
- Best practices for issuance of POBs include:
    - From the Government Finance Officers Association (GFOA):
        - Attain legal authorization
        - Assure prudent funding of pension plans
        - Conduct an evaluation of risks
        - Provide adequate disclosure
        - Conduct in-depth financial analysis
        - Closely review the actuarial assumptions and projections
    - Market-driven recommended practices include:
        - Consider using multiple actuaries to provide more due diligence in the analysis of assumptions and methods used to calculate the unfunded liabilities and ARC.
            - A number of states have an actuary on retainer to review proposed retirement legislation (Arkansas, Nebraska, and Oklahoma).
            - The use of multiple actuaries is standard practice in the United Kingdom. Each plan has its own actuary and an additional actuary is retained to represent the public interest. This concept is currently being explored by the actuarial profession in the United States.
            - This practice increases confidence both internally and externally.

- The accrued state liability for the KTRS medical insurance costs was specifically analyzed by JP Morgan Chase.
    - A refinancing of the "loans" from KTRS pension fund to pay medical benefits shares some similarities to traditional POBs, as both would be issued in the taxable bond market.
    - The "loans" could be refinanced with taxable bonds at lower interest costs than currently being paid.[10]
    - The proceeds from the bond deal would be used to replenish the KTRS pension fund.
    - By refinancing the approximately $540 million over a 10 year period, the Commonwealth could realize an interest cost of 5.37% compared to the 7.50% rate it is currently charging itself.[11]
    - The Commonwealth could also consider modifying the term of this financing to meet other financial and policy goals.
- If the Commonwealth wants to pursue the issuance of POBs for any portion of its pension and / or OPEB liabilities, the following measures must be taken:
    - Enabling legislation must be enacted and appropriations made for the debt service associated with the bonds.
    - Consider the use of this funding tool only when the borrowing rate achieve the funding goals set forth:
        - The investment return on the proceeds is expected to exceed the borrowing cost on the bonds over the life of the issue.
        - The borrowing cost on the bonds is less than the actuarially assumed rate on return on the pension fund.
    - Conduct a comprehensive actuarial review prior to attempting to bring an issuance to market.
    - Incorporate POBs into a comprehensive funding plan.
    - Develop an asset allocation strategy for the proceeds of the bond issue, both short-term and long-term.
    - Design a bond repayment structure that achieves the Commonwealth's funding goals.
    - Identify key bond / product tools for the financing.

[10] Note: This statement may not hold true at the time of this report due to significant market upheaval and uncertainty. Lack of access to capital has significantly increased borrowing costs.
[11] Same comment as footnote #10.

- Consider regular, independent performance reviews of the issuance over time to assess how well the funding plan is meeting the financing objectives.

- Conclusions:
  - POBs are a viable tool for funding a portion of the Commonwealth's pension and or OPEB liabilities.
  - If used as a part of a comprehensive plan, and all other things being equal, POBs should not reduce the state's credit rating.

Representatives from the Kentucky Education Association pointed out that a reliable source of funding needs to be identified to pay for the healthcare benefits for retired teachers and that in consideration of that challenge, no increases in benefits are being advocated for teachers at this time.

POLICY OPTIONS SUGGESTED BY THE SUBCOMMITTEE

Policy Options Suggested by the Subcommittee

- **Kentucky Retirement Systems (KRS):**

  1. The additional funding required pursuant to the schedule of intended increases in funding of the ARC will be large, and will increase in amount until 100% of the ARC is reached. ***The projected amounts of additional funding required should be made available early in the budget development process. Projected unfunded liability numbers should be publicized, and it should be noted that "pay as you go" funding, rather than prefunding, is used with some of the health benefits.***

     - Merits:

       - Raising awareness about the magnitude of required funding to meet the statutory targets for the employer contributions for the KERS and SPRS earlier in the budget process will aid decision makers and in the resource allocation process.

     - Concerns:

       - The annual actuarial valuation is completed as of the end of the prior fiscal year. The results of the valuation are not available until late October each year. Therefore it would be difficult to provide the information much earlier than it is already provided.

       - Making the dollar amount of projected increases in necessary funding known earlier in the budgeting process will not impact the final funding decisions. We should not change the current budgeting process to accommodate this particular issue when all areas of government needing additional funding will submit their requests at the same time.

  2. ***KRS should conduct a full experience study prior to the actuarial valuation as of June 30, 2009 upon which the ARC will be based for the FY 2010 – 2012 biennial budget.***

     - Merits:

- This budgeting period will be the first period for implementation of the statutory targets for increased employer contribution rates. The valuation upon which the ARC is calculated is consequential and should be based on the most up-to-date information available.

- The "window" for enhanced benefits for those that retire prior to January 1, 2009 will have concluded. It appears that significantly fewer retirements have taken place than previously estimated by some. It would be helpful to understand how the actual experience impacts the funding status of the system.

- Concerns:

  - The KRS conducts its experience study every five years. This proposal would advance the current schedule by one year. It is questionable if there is adequate time to complete the experience study prior to the next valuation.

  - Over the long term, when the experience study is conducted won't have an impact on the level of funding needed. Extraordinary measures should not be taken to advance this process by one year.

  - Note: If the next experience study is conducted next spring, it won't include the full impact of the retirement window experience as it will be as of June 30, 2008. Consider beginning the 4 year cycle with the June 30, 2009 valuation.

3. The actuarial valuation, currently required to be conducted annually, should be conducted every two years to coincide with the biennial budget process.

- Merits:

  - Currently, KRS conducts an actuarial valuation annually pursuant to KRS 61.565 (3). However, the Commonwealth utilizes a biennial budgeting process. In the summer of odd-numbered years, the KRS is requested to provide projected employer contribution rates (the ARC) for the budget development process for both years of the upcoming biennium. The budget development and enactment process takes place with the

Governor recommending and the General Assembly enacting employer contribution rates in the biennial budget. Subsequently, the KRS conducts a valuation as of June 30 of the year in which the budget is enacted and adjusts the recommended rate for the second year of the biennium. With the statutory targets in place expressed as a percentage of the ARC, it is important to make clear that the amount by which compliance is judged is the ARC projected by the KRS prior to the enactment of the budget, not the result of the subsequent valuation. Moving to a valuation every two years would address this issue.

- Administrative cost savings could be realized.

- Concerns:

  - Conducting the valuation process every two years could result in larger swings in the unfunded liability and the ARC being recognized at one time.

  - The trend in actuarial analysis is to have more frequent valuations, not less. The cost of a biennial valuation would be 25% to 30% higher than the cost of an annual valuation. The cost of the experience study would also increase. Biennial valuations would result in the loss of some detailed annual data that is currently provided in the CAFR.

- **Kentucky Teachers' Retirement System (KTRS):**

  1. ***Measures should be taken to both address the accumulated costs of health care that have been paid by the pension fund, and address the ongoing increasing costs of providing health care benefits to retirees. The Budget of the Commonwealth should provide adequate funding to eventually eliminate the practice of diverting pension funds to pay for health care.***

     - Merits:

       - Health care is the major cost driver of the UAL for both systems.

- Redirected Health care funds are accruing interest. Measures should be taken to finance this liability in the most cost-effective manner.

- Concerns:

  - The Healthcare Subcommittee of the Kentucky Public Pension Work Group will make recommendations that will result in decreasing the health care costs of both of the Retirement Systems.

  - The elimination of the practice of diverting funds from the pension fund should not result in diminishing of retiree health care.

2. ***As a component of a comprehensive funding plan, the Commonwealth should consider issuing bonds to pay off all, or a portion, of the accumulated costs of the health care benefits over the last three biennial budgets which can be a more cost efficient method to paying for these obligations than the current budgeting practice. However, bonds should only be issued if the market conditions are favorable resulting in:***

   - ***The borrowing costs being less than the current budgeted interest costs assumed at the actuarial rate of return of 7.5%; and***

   - ***The investment return on the proceeds of the bonds can reasonably be expected to exceed the cost of the borrowing over the life of the borrowing.***

   - Merits:

     - Redirected funds from the KTRS insurance fund are accruing interest; bonding would provide KTRS with the cash to balance the existing debt.

     - The cost of repaying the redirected funds could be reduced by the lower interest rate on the bonds.

   - Concerns:

     - The obligation for the redirected funds would shift from being a soft liability to a hard debt, reducing financial

flexibility for the Commonwealth in times of economic downturns.

- The issuance of bonds for pension liabilities would count against the state's debt capacity, resulting in a crowding out effect on other important capital priorities such as education and infrastructure.

- The investment risk is significant over the life of the bond issue.

- If one analyzes the cash flow relating to a POB, there is a concern about the state paying money (bond interest) to an outside agency that could be paid directly to the plan. These payments could hamper the state's ability to make its required contributions. There is also a potentially adverse impact on the commitment to contribute.

- The bond question avoids the need to treat and talk about KTRS funding in a more straightforward manner, much like KRS. The cost of retiree health has never been paid by the pension trust. There is no true loan and there is no receivable asset on the KTRS pension trust books. There is no diversion of assets from pension to health. What is happening in fact is that the total contribution to KTRS is being split into a pension piece and a health piece. To the extent that this produces less than a full ARC payment to the pension side, that is being recognized in each subsequent year's actuarial valuation.

3. If bonding is utilized to pay a portion of the unfunded liability, an independent investment advisory committee should be established to assist KTRS with the investment allocation and cash management issues.

- Merits:

  - Investment return on the proceeds from the bonds is a key issue and concern, best practices would include ensuring that a large influx of cash is properly managed to maximize the chance of achieving superior returns.

- Helps the system to manage dollar cost averaging; market timing; allocations; and long term and short term goals.

- The establishment of such an independent advisory group should be a precondition for the Commonwealth before any bonds should be issued.

- Concerns:

  - The independence of the advisory committee must be assured to be free of conflicts of interest.

  - The independence and authority of the KTRS Board of Trustees in making final decisions about investments must be maintained.

- **Both KRS and KTRS**

  1. ***The Commonwealth should employ an actuary to review the assumptions used by the KRS and KTRS actuaries in the biennial valuation process and advise as to their reasonableness.***

     - Merits:

       - As HB 1 includes a targeted funding schedule linked to the ARC, it is important that diligence and review is exercised over the calculation of the ARC.

       - Several states employ independent actuaries to review the work of system actuaries to increase accountability and access to knowledge about the financial status of the systems for the legislature and the public.

       - This practice is becoming commonplace in Europe and is being studied by actuarial firms in the United States.

     - Concerns:

       - Administrative costs would increase.

       - Given the long time frame over which actuarial projections are made for public pension systems, it is unlikely that any suggestions resulting from such

oversight would have significant implications for the funding status of the retirement systems.

- Many actuaries have been employed to review the systems in the context of proposed legislation.

- KRS changes actuarial firms from time to time to assure they are receiving objective actuarial projections. KTRS utilizes actuarial audits.

2. Both KRS and KTRS should implement an independent actuarial audit every four years to review the actuarial assumptions and performance of the firms employed by the systems.

- Merits:

  - See merits of suggestion #1 above.

  - A coordinated schedule would be established for both systems

  - The confusion associated with the hiring of an additional actuary by the Commonwealth as listed in #1 above is reduced, but the same results are accomplished.

  - Increased transparency and accountability for the actuarial firm/s which are employed by the systems for the benefit of the taxpayers of the state.

- Concerns:

  - See concerns with suggestion #1. above.

  - Regulations would have to be created to ensure the independence of the regularly scheduled audits.

  - Every 4 years may be too frequent. A numbers of public pension systems conduct an actuarial audit every 5 – 10 years.

3. Measures should be taken to address the ongoing increasing costs of providing health care benefits to retirees.

- Merits:

- Healthcare is the major cost driver of the UAL for both KRS and KTRS.

- HB 1 passed a number of reforms that will begin help to address the rising cost of employee health care. Of particular note to the Funding Subcommittee is the additional 1% additional employee contribution to health care, which will help to drive down the UAL overtime.

- There are more tools for dealing with health based funding problems than with pension based funding problems, because the health benefits are usually easier to modify. Plan sponsors should present estimates of the cost savings that could be realized from a reasonable range of changes to the present post-retirement health benefits. They should also show how post-retirement benefits in Kentucky compare to those of most state programs. With such data in hand, better planning is possible, both for the parties funding the plans and the groups representing the covered members.

- Concerns:

    - The Healthcare Subcommittee of the Kentucky Public Pension Work Group will make recommendations that will result in decreasing the health care costs of both of the Retirement Systems.

Comments of Kentucky Chamber of Commerce on Policy Options Recommended by Funding Subcommittee of the Governor's Pension Work Group

Publicizing Data (KRS Recommendation 1): The unfunded liability numbers should definitely be publicized. Currently, the only way to obtain this information is to download the annual financial statements from the web sites of each of the retirement systems. The administration should make this information readily available via a dedicated web site on pension issues.

Experience Study (KRS Recommendation 2): KRS should conduct an experience study more frequently than once every five years. Current conditions dictate that the most accurate data possible be available.

Bonding (KTRS Recommendations 2 and 3): An independent investment advisory committee should be established (that is made up financial professionals, not board members) to sign off on investment decisions. Bonding should not be allowed unless this group of experts agrees that market conditions are favorable for a bond issue and the proceeds of the bond issue are invested in a manner recommended by the advisory committee. The recent report on investment losses at KRS makes this requirement critical.

Additional Actuaries (KRS & KTRS Recommendations 1 & 2): The administration should establish an independent permanent panel of actuaries, much like the consensus revenue forecasting group of economists, who would meet periodically to review the funding recommendations made by actuaries for each of the retirement systems. Actuaries often reach different conclusions on the same data and this approach would help ensure accuracy and encourage consensus about important pension issues. This group could then make recommendations to the Governor and General Assembly for funding and needed changes to the system.

Health Care (KRS & KTRS Recommendation 3): The Subcommittee heard testimony that a majority (55%) of the actuarially required contribution (ARC) is for health insurance. To adequately address the cost of the pension systems, health costs must also be addressed. The panel of actuaries previously recommended should also be tasked to review health benefits and make recommendations on plan design and cost sharing that would reduce premium costs.

Appendices

Appendix A

Cavanaugh Macdonald Actuarial Analysis of HB 1

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 20, 2008

Mr. William A. Thielen
Chief Operations Officer
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: Actuarial Analysis of House Bill 1

Dear Bill:

As requested, we have analyzed the impact on the KRS funds of the provisions contained in **House Bill 1 (HB 1).** The results of our analysis, which include a comparison of employer normal cost contribution rates, are presented below.

Proposed Benefit Structure

HB 1 includes a new benefit structure for those hired after August 31, 2008. It changes the existing structure for all KRS members. Appendix A enclosed with this letter contains an outline of the new structure supplied by the LRC. This is the material we used in developing the results shown below. Any differences between the outline and the actual legislation could change the figures presented.

Based on the outline, significant changes are made in the benefit accrual rate, retirement eligibility, employee contribution rate, cost-of-living adjustments (COLA), health care vesting eligibility, retiree healthcare benefits, and the definition of final average earnings. All other benefit features of the proposed structure remain the same as under the current benefit structure. In addition HB 1 changes certain provisions of the statute dealing with current active members, as outlined in Appendix A.

It must be noted that current law already provides for lower benefits for recent hires (and those who will be hired in the future) than had been the case before 2003. The analysis that follows uses this existing lower tier of benefits as the baseline from which to measure the savings that may accrue from HB 1. The anticipated savings are measured by the change in the employer's normal contribution rate. Since any benefit reduction can only be applied to new hires, it will be many years before the participating employers will realize the full impact of the lower normal contribution rate. In other words, the savings measured by the change in normal contribution rate will emerge very slowly as those hired after August 31, 2008 become a larger and larger portion of the total active population of KRS. There will be limited

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com

savings realized in the first 5-10 years under the new structure. In any event, the contribution necessary to amortize the unfunded accrued liability (UAL) of the various funds will not change but rather will continue in the future until the UAL is completely funded.

Parameters and Assumptions

The cost analyses were performed using the June 30, 2007 valuation results as a base, and comparing the employer normal cost contribution rate for each of the funds based on the current benefit structure for new hires and based on the proposed benefit structure, which would apply to new hires after August 31, 2008. As noted above, limitations were placed on disability retirement benefits and the benefit accrual rate (for CERS members) for members hired on and after August 1, 2004, the use of service purchases for those purchases made after August 1, 2004 and the healthcare benefit was scaled back for those members hired on or after July 1, 2003. These changes were included in the current benefit normal cost rates for comparison purposes. Of course, the current retirement window benefit enhancements were ignored. The change in definition of hazardous employee for CERS included in HB 1 was not taken into account in our analysis as data was not available.

In developing the results under the new benefit structure, three assumptions were changed from those used in the June 30, 2007 valuations. First, as a result of the change in sick leave credit noted in Appendix A, the assumption of 6 months credit under KERS (both non-hazardous and hazardous) and 18 months credit under SPRS were eliminated. Second, the retirement rates were adjusted to reflect the change in retirement eligibility. Finally, all KERS Non-Hazardous and SPRS insurance results were determined assuming a 7.75% interest rate based on the contribution parameters discussed below.

Results

The table below shows, for each of the funds, the employer normal cost contribution rates assuming all new hires were covered by the benefit structure currently in place, and the employer normal cost contribution rates assuming all new hires were covered by the proposed benefit structure. These rates are calculated assuming new hires in the future will exhibit the same demographic characteristics as the current active membership. Please see the next section of this letter for a discussion of the COLA as it applies to current active and retired members.

The insurance results reflect the 1% member contribution rate called for in HB 1. As can be seen the ultimate normal rate for KERS Non-Hazardous health care is <u>less</u> than the new required employee contribution of 1% of payroll, resulting in the negative employer rate shown in the table. In other words, long term, employees would be required to pay more than the cost of the proposed health care benefits.

Employer Defined Benefit Normal Cost Contribution Rates

Fund	Current	Proposed	Decrease
	Pension		
KERS Non-Hazardous	2.97%	1.11%	1.86%
KERS Hazardous	6.31	3.27	3.04
CERS Non-Hazardous	3.12	1.21	1.91
CERS Hazardous	7.38	4.66	2.72
SPRS	8.97	5.05	3.92
	Insurance*		
KERS Non-Hazardous	2.30%	(0.13)%	2.43%
KERS Hazardous	5.65	0.99	4.66
CERS Non-Hazardous	3.62	0.39	3.23
CERS Hazardous	4.44	0.68	3.76
SPRS	3.67	0.40	3.27

* The proposed insurance rates are after reduction for the additional 1% member contribution rate.

Changes to Current Member Benefits

As noted in the Appendix A, HB 1 also changes certain benefits for all current active and retired members. One change is stipulating an annual rate of 1.5% for future COLA's beginning July 1, 2009. As we understand the proposed statutory language, it is such that the COLA will continue to be financed on a "term-cost" basis whereby the liability for the COLA is only recognized as each year's increase is granted. Another change that has an immediate impact on valuation results is the requirement that the value of unused sick leave be paid to the fund by the last employer beginning July 1, 2010.

In order to demonstrate the impact of the COLA change on system funding, ten-year projections were done for each of the pension funds. The projections were performed using the June 30, 2007 valuation results as a base, and projecting active and retired memberships for each of the funds over the ten year

period assuming the active population remained constant in number. We then performed valuations of the populations annually to develop the contribution rates. The projection results are shown with three annual COLA scenarios: 3.0%, 1.5% and 0.0%.

The rates in future years assume all actuarial assumptions are met each year. The results shown are each year's actuarially required contribution assuming that the Commonwealth actually contributes at the fixed rates specified in HB 1 for the ten-year period (see Appendix A).

The rates in the tables below do not reflect the proposed changes in benefit structure for those hired after August 31, 2008. As stated elsewhere the impact of those changes will take years to materialize, and would be very minor in a ten-year projection. In addition, the differences in rates shown for the three COLA scenarios are the correct differentials regardless of the benefit structure for new hires.

KERS Non-Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	16.54%	16.54%	16.54%
2010	17.69	17.37	17.05
2011	18.96	18.27	17.59
2012	20.18	19.08	18.01
2013	21.49	19.97	18.50
2014	23.12	21.13	19.24
2015	24.79	22.31	19.98
2016	26.51	23.51	20.72
2017	28.28	24.72	21.45
2018	30.07	25.92	22.15

KERS Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	10.84%	10.84%	10.84%
2010	10.55	10.38	10.20
2011	10.41	10.04	9.68
2012	10.32	9.73	9.15
2013	10.51	9.68	8.87
2014	11.11	10.00	8.95
2015	11.77	10.35	9.02
2016	12.45	10.70	9.07
2017	13.19	11.07	9.12
2018	13.97	11.45	9.16

CERS Non-Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	7.76%	7.76%	7.76%
2010	7.72	7.57	7.43
2011	7.87	7.56	7.25
2012	7.66	7.16	6.68
2013	7.46	6.77	6.10
2014	7.51	6.60	5.73
2015	7.60	6.45	5.37
2016	7.71	6.30	5.00
2017	7.83	6.15	4.61
2018	7.99	6.01	4.21

CERS Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	15.04%	15.04%	15.04%
2010	15.01	14.77	14.54
2011	15.29	14.77	14.27
2012	15.51	14.70	13.91
2013	15.85	14.71	13.62
2014	16.55	15.06	13.65
2015	17.34	15.46	13.70
2016	18.18	15.88	13.76
2017	19.11	16.35	13.82
2018	20.12	16.85	13.89

SPRS Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	32.39%	32.39%	32.39%
2010	34.66	33.94	33.22
2011	37.07	35.50	33.96
2012	39.56	37.04	34.59
2013	42.40	38.85	35.44
2014	45.75	41.09	36.68
2015	49.25	43.41	37.93
2016	52.98	45.83	39.22
2017	56.85	48.29	40.47
2018	60.75	50.69	41.60

With regard to the change in financing for unused sick leave, the assumption of 6 months credit under KERS (both non-hazardous and hazardous) and 18 months credit under SPRS would be eliminated. The resulting decrease in employer contribution rate, based on the June 30, 2007 valuation results, is shown in the table below. CERS already reflects this approach to unused sick leave.

Employer Rate Reduction for Unused Sick Leave

Fund	Rate Reduction
KERS Non-Hazardous	0.30%
KERS Hazardous	0.47
SPRS	2.46

Fund Depletion

It was also requested that we update earlier determinations of when funds would likely run out of money based on the lower COLA and phased-in contribution rate pattern of HB 1. Utilizing the results of the ten year projections shown above as well as previous projections of the health care funds, all of the funds are expected to have sufficient monies to pay benefits until the point in time when each reaches a contribution level of 100% of the ARC. Thus no fund is expected to be depleted based on the provisions of HB 1.

If you need any further information regarding this analysis, please do not hesitate to contact us. The undersigned is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Thomas J. Cavanaugh FSA, FCA, MAAA, EA
Chief Executive Officer

Copy to: R. Burnside

S:\Kentucky Retirement Systems\2008\Miscellaneous Correspondence\Actuarial Analysis 2008 SSL KERS & SPRS.doc

Appendix A

Benefit Components

	KERS & CERS Non-Hazardous	KERS Hazardous, CERS Hazardous & State Police
	For Members employed September 1, 2008 or after.	**For Members employed September 1, 2008 or after.**
Benefit factor:	Years of Service at Retirement / Benefit Factor 10 or less — 1.10% 10 – 20 — 1.30% 20 – 26 — 1.50% 26 – 30 — 1.75% Years above 30 — 2.00% The benefit factor increases for all service as new tiers are reached, except for years after 30	Years of Service at Retirement / Benefit Factor 10 or less — 1.30% 10 – 20 — 1.50% 20 – 25 — 2.25% 25 or more — 2.50%
Employee Contribution Rate	5.0% for Pension Defined Benefit -Refundable with interest 1.0% to Health Insurance Fund - Non Refundable	8.0% for Pension Defined Benefit - Refundable with interest 1.0% to Health Insurance Fund - Non Refundable
Employer Contribution Rate	See Chart below.	See Chart below.
Age and Years Service Required for full earned benefits:	Rule of 87 with minimum age of 57 Any Employment date age 65 with 5 years service credit	25 full years of service credit at any age Age 60 with 5 years service
Age and Years Service Required for reduced benefit level:	Age 60 with 10 years service	Age 50 with 15 years service
Final Average Earnings and pay components	Final 60 months with no lump sum or other terminal pay considered.	Final 36 months with no lump sum or other terminal pay considered.
Purchased Service Credit	Does not count toward benefit eligibility and actuarial cost includes COLA and is based on earliest eligible retirement date	Same as Non-Hazardous
COLA	Fixed 1.5% annual COLA which may be suspended by the Legislature.	Same as Non-Hazardous
Health Insurance	Rule of 87 or age 60 with 15 years service – benefit of $10 per month per year of service	With 15 years of service - benefit of $15 per month per year of service ($10 per month per

	adjusted by 1.5% after 2008 Any employee returning to work would be required to take the coverage provided by the new employer and not have coverage by the retirement system during that employment.	year of service for surviving spouses) adjusted by 1.5% after 2008
Unused Sick Leave	Up to 12 months, may be credited toward service credit but not to qualify for a benefit. All cost, for this additional service credit, shall be paid to the pension trust by the last employer, effective July 1, 2010.	Up to 12 months, may be credited toward service credit but not to qualify for a benefit. All cost, for this additional service credit, shall be paid to the pension trust by the last employer, effective July 1, 2010.

CHANGES TO CURRENT SYSTEMS

	KERS & CERS Non-Hazardous	KERS Hazardous, CERS Hazardous & State Police
Unused Sick Leave	All cost, for this additional service credit, shall be paid to the pension trust by the last employer, effective July 1, 2010.	Same as Non-Hazardous
Purchased Service Credit	Actual cost to include COLAs and be based on the earliest eligible retirement date	Same as Non-Hazardous
COLA	Effective July 1, 2009, 1.5% annually for all current and future retirees	Same as Non-Hazardous
Employee Contribution Rate	No Change	No Change
Employer Contribution Rate	See Chart below	See Chart below
Retired Reemployed	Any member who begins to draw a benefit from KERS Non Hazardous, CERS Non Hazardous or the State Police Retirement System, September 1, 2008 or thereafter, will be required to observe a 3 month break in employment. Provided the break is observed, the retiree may continue to receive the retirement benefit but shall not be eligible to start a new retirement account even though the employing agency will be required to make the required employer contribution.	Any member who begins to draw a benefit from KERS Hazardous, CERS Hazardous or the State Police Retirement System, September 1, 2008 or thereafter, and returns to work under KERS Hazardous, CERS Hazardous or the State Police Retirement System will be required to observe a 1 month break in employment. Provided the break is observed, the retiree may continue to receive the retirement benefit but shall not be eligible to start a new retirement account even though the employing agency will be required to make the required employer contribution.

Employer Contribution Rate Chart*

FY Ending	KERS Non-Hazardous	KERS Hazardous	SPRS
6/30/2011	44%	76%	60%
6/30/2012	48	79	65
6/30/2013	53	83	70
6/30/2014	57	86	75
6/30/2015	61	89	80
6/30/2016	65	92	85
6/30/2017	69	95	90
6/30/2018	73	98	95
6/30/2019	77	100	98
6/30/2020	81		100
6/30/2021	85		
6/30/2022	89		
6/30/2023	93		
6/30/2024	97		
6/30/2025	100		

* CERS employer contribution rates set at 13.50% and 29.50% for non-hazardous and hazardous respectively for FY 2008-2009.

Appendix B

Legislative Research Commission Fiscal Note on HB 1

COMMONWEALTH OF KENTUCKY
STATE FISCAL NOTE STATEMENT

GENERAL ASSEMBLY
2008 SPECIAL SESSION

LEGISLATIVE RESEARCH COMMISSION

MEASURE

(x) 2008 BR No. 0002 (x) House Bill No. 1 GA

( ) Resolution No. _____ ( ) Amendment No. _____

SUBJECT/TITLE An Act relating to retirement and declaring an emergency.

SPONSOR Reps M. Cherry, J. Richards, R. Adkins, L. Clark, C. Hoffman and R. Wilkey

NOTE SUMMARY

Fiscal Analysis: X Impact ____ No Impact X Indeterminable Impact

Level(s) of Impact: ____ State ____ Local ____ Federal

Budget Unit(s) Impact All budget units of State Government, Local Governments and other entities that are sponsors of the Kentucky Retirement System or the Teachers Retirement System

Fund(s) Impact: X General X Road X Federal

X Restricted Agency (Type) Local (Other)

FISCAL SUMMARY

Fiscal Estimates	2007-2008	2008-2009	2009-2010	Future Annual Rate of Change
Revenues (+/-)	0	0	0	
Expenditures (+/-)	0	0	0	+$52,000,000 per year
Net Effect	0	0	0	

While any cost avoidance for the Retirement Trust will take several years to start to materialize, state agencies and other employers will have to make significant increases in the employer contributions beginning with fiscal year 2010-11.

MEASURE'S PURPOSE

To make changes in the benefits provided new employees and revise the employee and employer contribution rates to the Kentucky Retirement System and the Teachers Retirement System.

PROVISION/MECHANICS

Section 1 amends the requirements for an actuarial analysis on any bill affecting a state-administered retirement system and requires that any new assumption not utilized by the retirement systems be clearly stated. Sections 2 through 5 set the COLA for the Legislative and Judicial Retirement Plan the same as for the State Employee plan (1.5% annually) and increase the contribution for members of those plans by 1%. Sections 6 through 9 deals with the State Police and KERS Hazardous benefit plans for new employees, setting revised benefit factors for new employees, establish a new method to determine final compensation, and fix the interest rate for members who terminate and withdraw their contributions. Sections 10-14, 16-20, and 22-27 deal with the KERS Non Hazardous Employees and CERS Non Hazardous Employee benefit plans for new employees, establishing a new method to determine final compensation, fixing interest rate for members who terminate, requires new employees to contribute

1% additional to go to the Health Trust Fund, sets the COLA at 1.5% and limits the sick leave credit to 12 months service with the last employer paying the service cost effective July 2010. Section 20 also provides for a required break in service in order to be reemployed and prohibits the establishment of a second retirement account. Section 21 establishes specific educational requirements for board members and revises the maximum term of office.

Section 15 establishes a schedule for KERS Non Hazardous, KERS Hazardous and State Police Employers to phase into the full Actuarial Required Contribution rate by the year 2025.

Sections 28 through 41 deal with the Teachers Retirement System, increasing the employee contribution for new hires, revises the benefit factor and years service for new hires, clarifies the sick leave credit provisions and increases the vesting for health insurance benefits to 15 years for new hires.

Section 43 establishes the CERS employer contribution rates at 13.5% and 29.5% for CERS Non Hazardous and Hazardous respectfully for the 2009 fiscal year, which gives those employers a reduction from the current projected rate for that fiscal year only.

Section 45 declares an emergency.

FISCAL EXPLANATION

Funding Overview:
The Actuarial Required Contribution (ARC) is the contribution required to provide the necessary finances to support the benefits provided by a plan according to the actuarial assumptions embedded in the plan and approved by the plan sponsor. There are two main components of the ARC that are annualized, Normal Cost and Unfunded Actuarial Accrued Liability.

Normal Cost are the projected annual cost to provide the future benefits adopted for the plan with all actuarial assumptions being meet. Changes in the plan design can decrease or increase the future normal cost of the plan. For a plan like the Kentucky Retirement System, with an inviolable contract benefit design for current employees, changes can only be made to a plan for future hires. Therefore it takes many years for those new employees to be a majority of the plan recipients and those changes to fully impact the funding required for the normal cost of the plan.

Changes to the actuarial assumptions for a plan, level of investment returns, prior years funding levels and unfunded COLA's are examples of items that affect the second component of the ARC, the Unfunded Actuarial Accrued Liability.

Actuarial Analysis:
Cavanaugh Macdonald Consulting, LLC, the actuary for the Kentucky Retirement System, has preformed an actuarial analysis included in a letter dated June 20, 2008 which is attached. That letter will be utilized for the balance of this review and it will concentrate on the KERS Non Hazardous sub-system since it is the largest segment for state employees.

It is projected that over the next 20 to 30 years the benefit changes for new hires could produce a reduction in the normal cost, and there would also be a reduction of the normal cost based on the change in funding of the sick leave service credit and other items included in HB 1. The total normal cost reduction is projected to reach 4.23% of total payroll when all employees are covered under the new benefit structure. The current KERS Non Hazardous covered payroll is estimated to be approximately $1.7 billion for Fiscal Year 2008-09 for all covered employers with State Government comprising approximately 80% of that amount. Therefore if it were possible to have the new structure totally in place to cover all employees in the current fiscal year the cost avoidance as a result of the lower Normal Cost would be approximately $58.1 million total funds or approximately $29.1 million General Fund. It is important to note that Sate Government has historically had a very high turnover rate in the first 10 years of service with an average of 52.7% of the employees having less than 10 years service. That would indicate that the annual cost avoidance to the Normal Cost after 10 years of implementation could be approximately $15.3 million General Fund annually.

The above calculations would seem to be consistent with the cost avoidance projected by Cavanaugh Macdonald, in a June 23, 2008 letter to the Kentucky Retirement System, where they estimate the cost avoidance in Fiscal Year

2010-11 to be approximately $18.6 million total funds which would compute to approximately $9.3 million General Fund for that fiscal year for all KERS Non Hazardous employers.

Actuarial Required Contribution:
The following chart is based on the estimated salaries for employees covered by KERS Non Hazardous and projects the Total Employer Contribution required to meet the phase in percentage included in HB 1 over the next eight year period. To meet this schedule it will be necessary for the General Assembly to appropriate an average of approximately $52.8 million new dollars or approximately $26.4 million new General Fund dollars each fiscal year beginning in the next biennial budget.

FY Ending 30-Jun	Estimated Salaries Non Hazardous	Estimated Total Projected ARC	HB 1 Phase-In %	Est. Total Employer Contribution	Budgeted Employer Contribution
2009	$1,717,147,350	28.60%			$171,886,450
2010	$1,750,776,853	30.10%			$203,265,200
2011	$1,791,276,239	31.65%	44%	$249,453,129	
2012	$1,848,205,547	33.04%	48%	$293,110,614	
2013	$1,904,683,034	34.60%	53%	$349,280,775	
2014	$1,962,274,367	36.52%	57%	$408,474,881	
2015	$2,020,866,339	38.55%	61%	$475,216,824	
2016	$2,081,582,876	40.70%	65%	$550,682,750	
2017	$2,144,610,748	42.95%	69%	$635,566,118	
2018	$2,209,500,260	45.31%	73%	$730,820,934	

Summary:
Utilizing the attached documents from the KRS actuary, the retirement systems trust funds could expect a cost avoidance of approximately $18.6 million in fiscal year 2010-11 and KERS Non Hazardous employers can expect to be required to provide an additional $46.2 million employer contribution in that same fiscal year as compared to the previous fiscal year. It is further projected that 10 years after passage the annual cost avoidance for the KERS Non Hazardous retirement system trust funds would have grown to approximately $30.3 million annually but the required employer contribution to meet the phase-in schedule to the full ARC would have increased by approximately $558.9 million total funds annually. If the ARC were to remain consistent at the 2018 level the annual employer contribution would be approximately $1billion in 2025 when it is projected to be 100% funded for the KERS Non Hazardous group.

There would also be some increased funding requirement for the KERS Hazardous and State Police Retirement System to meet that phase-in schedule

Attachments

DATA SOURCE(S) KRS, LRC Executive Branch Personnel data

NOTE NO. 1.1 **PREPARER** Frank Willey **REVIEW** LBH **DATE** 6/25/08

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 23, 2008

Mr. William A. Thielen
Chief Operations Officer
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: KRS Funding Method and Possible

Savings from House Bill 1 Dear Bill:

As requested, we are writing to outline several issues surrounding the potential savings from the House Bill 1 (HB 1).

First, there appears to be some discussion about the use of the Entry Age Normal funding method (EAN). This is the method being used for all KRS funding. As you know, the normal rate under this method is determined using the actual normal rates for the current active membership at each valuation date. There has been a suggestion (and it was a recommendation by the previous actuary) to use the normal rate for those entering the systems now, since the benefit structure is lower for new entrants. We discussed the issue with the Board in 2006, and they concurred with our recommendation to use the approach we currently do. To understand the difference, it may be helpful to review some basic actuarial funding techniques.

Basic Actuarial Funding

For all pension plans, whether defined benefit or defined contribution, the basic retirement funding equation is:

$$C + I = B + E$$

Where:

C = employer and member contributi

ons
I =
investme
nt income
B = benefits paid
E = expenses paid from the fund, if any.

3550 Busbee Pkwy, Suite
250, Keunr saw,, GA 30144
Phone (678) 388-1700
Fax(678)` 388-1730
www.CavMa
cConsulting.com

As can be seen from the formula, for a given level of benefits and expenses the greater "I" is, the smaller "C" is. This is the underlying reason for advance funding a pension plan, and historically investment income pays for the vast majority of the benefit dollars received by plan participants. As an example, a GAO Report to the Senate Finance Committee in September, 2007 (GAO 07-1156) indicates that 63.7% of all state and local government pension plan revenue over the period from 1982-2005 came from investment income.

Of course, the problem with the formula is that in order to figure out exactly how much to contribute, the plan would have to be closed to new members and allowed to operate until all retirees were deceased. At that point, the benefits and expenses actually paid out, and the investment income actually earned would be known and, using the equation above, the true cost could be determined. Since the vast majority of plans are ongoing and have no intention of closing, and since even with a closed plan it takes a very long time before all benefits are finally paid out, plan sponsors hire actuaries to estimate the true cost of their plans and to create a budget to make systematic contributions to sleet that cost.

In order to determine the contributions needed, the actuary's first step is to estimate on a given date (the valuation date) the value of all benefits (and expenses) that will be paid to the existing active and retired membership over their remaining lifetimes based on the plan's current benefit structure. This estimation requires the use of assumptions regarding both future events (termination, disability, retirement, death, etc.) and future economic conditions (return on assets, inflation, salary growth, etc.).

By combining the future events assumptions and the salary growth assumption, the actuary generates an expected benefit payment stream. In other words, a string of annual payments expected to be made to the current active and retired members from the valuation date until all members are no longer living. Then the actuary applies the asset return assumption to discount each year's payments to the valuation date, creating the present value of all future benefits or the total liability of the plan.

The difference between the total liability and the current assets of the plan (more on this below) represents the present value of future contributions (PVFC) that have to be made by the plan sponsor (and in KRS' case the active members). Usually the plan sponsor cannot contribute the entire difference in one year, but rather desires a relatively smooth contribution pattern over time that also meets any external constraints (like the GASB accounting standards). In order to budget for the PVFC, the actuary applies an actuarial cost method. There are several acceptable cost methods, but it's important to recognize that they are nothing more than budgeting tools.

The cost method used by KRS is called the Entry Age Normal method, and it is by far the most commonly used method in the public sector (e.g., 78% of 85 large public pension plans included in the Wisconsin Legislative Council's "2006 Comparative Study of Major Public Employee Retirement Systems" use it). Its popularity stems from the fact that it is designed to generate level contributions as a percent of active member payroll over an employee's working lifetime. The EAN method splits the PVFC into two pots: a present value of future normal costs and an accrued liability. The "normal cost" is

a measure of the contribution rate necessary, payable from date of hire until departure from active membership in the plan, to finance the benefits promised to active members. The difference between the total liability and the present value of future normal costs is called the accrued liability. Subtracting the current asset value from the accrued liability generates the unfunded accrued liability (UAL).

The UAL is financed over a number of years (30 is the maximum under GASB) on either a level percent of pay or a level dollar method, and either using an open or closed period. Level percent of pay creates a contribution pattern that is expected to increase in dollar amount every year as the underlying active member payroll grows, and will generate a lower dollar contribution during the early years of an amortization schedule than level dollar does. KRS uses the level percent method over a currently closed amortization period, meaning the period decreases by one year with each succeeding valuation.

Funding Methods

As noted above, there are several acceptable actuarial cost or funding methods. Each generates the same total liability for a given benefit structure. The difference is in how the liability not covered by current assets (the PVFC above) is financed over the future. All but one method splits the total liability into a present value of future normal costs and an accrued liability. But each does so a little differently, generating different contribution patterns over time. The present value of future normal cost is spread over the remaining working lifetime of the active membership on the valuation date (about 12-15 years for most retirement systems), and, as noted above, the UAL is financed over a specified period of time, which is generally much longer.

If EAN is used but the normal rate is set artificially low for the current active membership, losses are generated each year that increase the [JAL. This occurs because the UAL increases each year by interest and the actual normal cost for the membership, and decreases by contributions made. As noted above KRS uses EAN. Some are apparently proposing the use of an alternative EAN that generates a lower normal rate based solely on the benefit structure for the newest members of the system. If the actual contributions are then based on that lower normal rate, the UAL will increase more than expected. The difference is clue to (a) the fact that for many years in the future a number of members are accruing additional benefits each year at the higher benefit level while the normal cost is based on the lower benefit level and (b) the shorter future working lifetime over which the normal rate is financed when compared to the UAL, amortization period.

Since the systems were already experiencing losses each year clue to COLAs that are not advance funded, we recommended, and the Board approved, the use of the actual normal cost in developing required contributions.

Potential Savings from HB 1

A related issue we were asked to address is the potential savings to employers from HB 1. As more fully detailed in our fiscal note of June 20, 2008 on HB 1, the initial savings are derived from the reduction in COLA beginning July 1, 2009. The savings from the change in benefit structure for new hires after August 31, 2008 will emerge slowly over many years as the active membership becomes more heavily weighted with members covered by the new structure.

Since the initial impact will not be felt until the June 30, 2009 valuation at the earliest, HB 1 will not impact the actuarially required contributions until the 2010-2011 fiscal year. In fact that is the first year addressed in the employer contribution rate phase-in provided by HB 1 In that year the vast majority of any "savings" will come from providing a 1.5% COLA instead of an assumed 3% COLA. Ultimately HB 1 will reduce employer costs by both the reduced COLA contributions and the lower normal rates shown in the June 20`x' fiscal note. The table below provides estimated savings in 2010-2011 and the potential savings 30 years later once the new benefit structure is fully integrated into the employer contribution rates. The 2037-2038 figures are based on payroll projections performed after the June 30, 2007 valuations were completed. The dollar amounts of savings are at best a rough approximation of what the actual savings may be, and are based on an assumption that the UAL amortization period would decline by one year every year until it reached 20 years, at which point it would be maintained at that level. It must also be recognized that the dollars are reflective of anticipated inflation over the time period from now to 2041. They would be much less if expressed in 2008 dollars. Finally, the majority of the pension savings in 2038 is a result of the lower cost of a 1 .5% COLA compared to a 3.0% COLA, neither one of which are guaranteed.

Fund	Savings in 2010-2011		Savings in 2037-2038	
	Percent of Pay	Dollars	Percent of Pay	Dollars
Pension				
KERS Non-Hazardous	0.99%	$18,622,342	11.80%	$497,769,399
KERS Hazardous	0.84	1,348,893	12.30	45,073,442
CERS Non-Hazardous	0.31	6,896,500	8.49	398,910,190
CERS Hazardous	0.52	2,601,353	15.28	163,246,605
SPRS	4.03	2,020,391	35.86	33,269,748
Insurance				
KERS Non-Hazardous			2.43%	$102,506,749
KERS Hazardous			4.66	17,076,605
CERS Non-Hazardous			3.23	151,764,419
CERS Hazardous			3.76	40,170,631
SPRS			3.27	3,033,800

Of course, we would be happy to discuss this issue with you in more detail at your convenience.

Thomas J. Cavanaugh FSA, FCA, MAAA, EA
Chief Executive Officer

Copy to: R. Burnside

S:\Kentucky Retirement Systems\2008"Miscellaneous Correspondence\Fonding Methods and Savings tram 1111 I doc

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 20, 2008

Mr. William A. Thielen
Chief Operations Officer
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: Actuarial Analysis of House Bill 1

Dear Bill:

As requested, we have analyzed the impact on the KRS funds of the provisions contained in House Bill 1 (HB 1). The results of our analysis, which include a comparison of employer normal cost contribution rates, are presented below.

Proposed Benefit Structure

HB 1 includes a new benefit structure for those hired after August 31, 2008. It changes the existing structure for all KRS members. Appendix A enclosed with this letter contains an outline of the new structure supplied by the LRC. This is the material we used in developing the results shown below. Any differences between the outline and the actual legislation could change the figures presented.

Based on the outline, significant changes are made in the benefit accrual rate, retirement eligibility, employee contribution rate, cost-of-living adjustments (COLA), health care vesting eligibility, retiree healthcare benefits, and the definition of final average earnings. All other benefit features of the proposed structure remain the same as under the current benefit structure. In addition HB 1 changes certain provisions of the statute dealing with current active members, as outlined in Appendix A.

It must be noted that current law already provides for lower benefits for recent hires (and those who will be hired in the future) than had been the case before 2003. The analysis that follows uses this existing lower tier of benefits as the baseline from which to measure the savings that may accrue from HB 1. The anticipated savings are measured by the change in the employer's normal contribution rate. Since any benefit reduction can only be applied to new hires, it will be many years before the participating employers will realize the full impact of the lower normal contribution rate. In other words, the savings measured by the change in normal contribution rate will emerge very slowly as those hired after August 31, 2008 become a larger and larger portion of the total active population of KRS. There will be limited

B-10

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com

savings realized in the first 5-10 years under the new structure. In any event, the contribution necessary to amortize the unfunded accrued liability (UAL) of the various funds will not change but rather will continue in the future until the UAL is completely funded.

Parameters and Assumptions

The cost analyses were performed using the June 30, 2007 valuation results as a base, and comparing the employer normal cost contribution rate for each of the funds based on the current benefit structure for new hires and based on the proposed benefit structure, which would apply to new hires after August 31, 2008. As noted above, limitations were placed on disability retirement benefits and the benefit accrual rate (for CERS members) for members hired on and after August 1, 2004, the use of service purchases for those purchases made after August 1, 2004 and the healthcare benefit was scaled back for those members hired on or after July 1, 2003. These changes were included in the current benefit normal cost rates for comparison purposes. Of course, the current retirement window benefit enhancements were ignored. The change in definition of hazardous employee for CERS included in HB 1 was not taken into account in our analysis as data was not available.

In developing the results under the new benefit structure, three assumptions were changed from those used in the June 30, 2007 valuations. First, as a result of the change in sick leave credit noted in Appendix A, the assumption of 6 months credit under KERS (both non-hazardous and hazardous) and 18 months credit under SPRS were eliminated. Second, the retirement rates were adjusted to reflect the change in retirement eligibility. Finally, all KERS Non-Hazardous and SPRS insurance results were determined assuming a 7.75% interest rate based on the contribution parameters discussed below.

Results

The table below shows, for each of the funds, the employer normal cost contribution rates assuming all new hires were covered by the benefit structure currently in place, and the employer normal cost contribution rates assuming all new hires were covered by the proposed benefit structure. These rates are calculated assuming new hires in the future will exhibit the same demographic characteristics as the current active membership. Please see the next section of this letter for a discussion of the COLA as it applies to current active and retired members.

The insurance results reflect the 1% member contribution rate called for in HB 1 As can be seen the ultimate normal rate for KERS Non-Hazardous health care is less than the new required employee contribution of 1% of payroll, resulting in the negative employer rate shown in the table. In other words, long term, employees would be required to pay more than the cost of the proposed health care benefits.

Employer Defined Benefit Normal Cost Contribution Rates			
Fund	**Current**	**Proposed**	**Decrease**
Pension			
KERS Non-Hazardous	2.97%	1.11%	1.86%
KERS Hazardous	6.31	3.27	3.04
CERS Non-Hazardous	3.12	1.21	1.91
CERS Hazardous	7.38	4.66	2.72
SPRS	8.97	5.05	3.92
Insurance*			
KERS Non-Hazardous	2.30%	(0.13)%	2.43%
KERS Hazardous	5.65	0.99	4.66
CERS Non-Hazardous	3.62	0.39	3.23
CERS Hazardous	4.44	0.68	3.76
SPRS	3.67	0.40	3.27

*The proposed insurance rates are after reduction for the additional 1% member contribution rate.

Changes to Current Member Benefits

As noted in the Appendix A, HB 1 also changes certain benefits for all current active and retired members. One change is stipulating an annual rate of 1.5% for future COLA's beginning July 1, 2009. As we understand the proposed statutory language, it is such that the COLA will continue to be financed on a "term-cost" basis whereby the liability for the COLA is only recognized as each year's increase is granted. Another change that has an immediate impact on valuation results is the requirement that the value of unused sick leave be paid to the fund by the last employer beginning July 1, 2010.

In order to demonstrate the impact of the COLA change on system funding, ten-year projections were done for each of the pension funds. The projections were performed using the June 30, 2007 valuation results as a base, and projecting active and retired memberships for each of the funds over the ten year

period assuming the active population remained constant in number. We then performed valuations of the populations annually to develop the contribution rates. The projection results are shown with three annual COLA scenarios: 3.0%, 1.5% and 0.0%.

The rates in future years assume all actuarial assumptions are met each year. The results shown are each year's actuarially required contribution assuming that the Commonwealth actually contributes at the fixed rates specified in HB I for the ten-year period (see Appendix A).

The rates in the tables below do not reflect the proposed changes in benefit structure for those hired after August 31, 2008. As stated elsewhere the impact of those changes will take years to materialize, and would be very minor in a ten-year projection. In addition, the differences in rates shown for the three COLA scenarios are the correct differentials regardless of the benefit structure for new hires.

KERS Non-Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	16.54%	16.54%	16.54%
2010	17.69	17.37	17.05
2011	18.96	18.27	17.59
2012	20.18	19.08	18.01
2013	21.49	19.97	18.50
2014	23.12	21.13	19.24
2015	24.79	22.31	19.98
2016	26.51	23.51	20.72
2017	28.28	24.72	21.45
2018	30.07	25.92	22.15

KERS Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	10.84%	10.84%	10.84%
2010	10.55	10.38	10.20
2011	10.41	10.04	9.68
2012	10.32	9.73	9.15
2013	10.51	9.68	8.87
2014	11.11	10.00	8.95
2015	11.77	10.35	9.02
2016	12.45	10.70	9.07
2017	13.19	11.07	9.12
2018	13.97	11.45	9.16

CERS Non-Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	7.76%	7.76%	7.76%
2010	7.72	7.57	7.43
2011	7.87	7.56	7.25
2012	7.66	7.16	6.68
2013	7.46	6.77	6.10
2014	7.51	6.60	5.73
2015	7.60	6.45	5.37
2016	7.71	6.30	5.00
2017	7.83	6.15	4.61
2018	7.99	6.01	4.21

CERS Hazardous Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	15.04%	15.04%	15.04%
2010	15.01	14.77	14.54
2011	15.29	14.77	14.27
2012	15.51	14.70	13.91
2013	15.85	14.71	13.62
2014	16.55	15.06	13.65
2015	17.34	15.46	13.70
2016	18.18	15.88	13.76
2017	19.11	16.35	13.82
2018	20.12	16.85	13.89

SPRS Employer Pension Contribution Rates

Fiscal Year Ending June 30	3.0% COLA	1.5% COLA	0.0% COLA
2009	32.39%	32.39%	32.39%
2010	34.66	33.94	33.22
2011	37.07	35.50	33.96
2012	39.56	37.04	34.59
2013	42.40	38.85	35.44
2014	45.75	41.09	36.68
2015	49.25	43.41	37.93
2016	52.98	45.83	39.22
2017	56.85	48.29	40.47
2018	60.75	50.69	41.60

With regard to the change in financing for unused sick leave, the assumption of 6 months credit under KERS (both non-hazardous and hazardous) and 18 months credit under SPRS would be eliminated. The resulting decrease in employer contribution rate, based on the June 30, 2007 valuation results, is shown in the table below. CERS already reflects this approach to unused sick leave.

Employer Rate Reduction for Unused Sick Leave

Fund	Rate Reduction
KERS Non-Hazardous	0.30%
KERS Hazardous	0.47
SPRS	2.46

Fund Depletion

It was also requested that we update earlier determinations of when funds would likely run out of money based on the lower COLA and phased-in contribution rate pattern of HB 1. Utilizing the results of the ten year projections shown above as well as previous projections of the health care funds, all of the funds are expected to have sufficient monies to pay benefits until the point in time when each reaches a contribution level of 100% of the ARC. Thus no fund is expected to be depleted based on the provisions of HB 1.

If you need any further information regarding this analysis, please do not hesitate to contact us. The undersigned is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Thomas J. Cavanaugh FSA, FCA, MAAA, EA
Chief Executive Officer

Copy to: R. Burnside

S \Kentucky Retirement Systems\2008\vEiscellaneous Correspondence\ACtuarial Analysis 2008 SSL KEAS & SPRSdoc

Appendix A Benefit Components				
	KERS & CERS Non-Hazardous		**KERS Hazardous, CERS Hazardous& State Police**	
	For Members employed September 1, 2008 or after.		**For Members employed September 1, 2008 or after.**	
Benefit factor:	Years of Service at Retirement 10 or less 10-20 20-26 26-30 Years above 30 The benefit factor increases for all service as new tiers are reached, except for years after 30	Benefit Factor 1.10% 1.30% 1.50% 1.75% 2.00%	Years of Service at Retirement 10 or less 10-20 20-25 25 or more	Benefit Factor 1.30% 1.50% 2.25% 2.50%
Employee Contribution Rate	5.0% for Pension Defined Benefit – Refundable with interest 1.0% to Health Insurance Fund – Non Refundable		8.0% for Pension Defined Benefit – Refundable with interest 1.0% to Health Insurance Fund – Non Refundable	
Age and Years Service Required for full earned benefits:	Rule of 87 with minimum age of 57 Any Employment date age 65 with 5 years service credit		25 full years of service credit at any age Age 60 with 5 years service	
Age and Years Service Required for reduced benefit level:	Age 60 with 10 years service		Age 50 with 15 years service	
Final Average Earnings and pay components	Final 60 months with no lump sum or other terminal pay considered.		Final 36 months with no lump sum or other terminal pay considered.	
Purchased Service Credit	Does not count toward benefit eligibility and actuarial cost includes COLA and is based on earliest eligible retirement date		Same as Non-Hazardous	
COLA	Fixed 1.5% annual COLA which may be suspended by the Legislature		Same as Non-Hazardous	
Health Insurance	Rule of 87 or age 60 with 15 years service – benefit of $10 per month per year of service adjusted by 1.5% after 2008 Any employee returning to work would be required to take the coverage provided by the new employer and not have coverage by the retirement system during that employment.		With 15 years of service – benefit of $15 per month per year of service ($10 per month year of service for surviving spouses) adjusted by 1.5% after 2008	
Unused Sick Leave	Up to 12 months, may be credited toward service credit but not to qualify for a benefit. All cost, for this additional service credit, shall be paid		Up to 12 months, may be credited toward service credit but not to qualify for a benefit. All cost, for this additional service credit, shall be paid to the pension trust by the last	

	to the pension trust by the last employer, effective July 1, 2010.	employer, effective July 1, 2010.

CHANGES TO CURRENT SYSTEMS		
	KERS & CERS Non-Hazardous	KERS Hazardous, CERS Hazardous & State Police
Unused Sick Leave	All cost, for this additional service credit, shall be paid to the pension trust by the last employer, effective July 1, 2010.	Same as Non-Hazardous
Purchased Service Credit	Actual cost to include COLAs and be based on the earliest eligible retirement date	Same as Non-Hazardous
COLA	Effective July 1, 2009, 1.5% annually for all current and future retirees	Same as Non-Hazardous
Employee Contribution Rate	No Change	No Change
Employer Contribution Rate	See Chart below	See Chart below
Retired Reemployed	Any member who begins to draw a benefit from KERS Non Hazardous, CERS Non Hazardous or the State Police Retirement System, September 1, 2008 or thereafter, will be required to observe a 3 month break in employment. Provided the break is observed, the retiree may continue to receive the retirement benefit but shall not be eligible to start a new retirement account even though the employing agency will be required to make the required employer contribution.	Any member who begins to draw a benefit from KERS Hazardous, CERS Hazardous or the State Police Retirement System, September 1, 2008 or thereafter, and returns to work under KERS Hazardous, CERS Hazardous or the State Police Retirement System will be required to observe a 1 month break in employment. Provided the break is observed, the retiree may continue to receive the retirement benefit but shall not be eligible to start a new retirement account even though the employing agency will be required to make the required employer contribution.

Employer Contribution Rate Chart*			
FY Ending	KERS Non-Hazardous	KERS Hazardous	SPRS
6/30/2011	44%	76%	60%
6/30/2012	48	79	65
6/30/2013	53	83	70
6/30/2014	57	86	75
6/30/2015	61	89	80
6/30/2016	65	92	85
6/30/2017	69	95	90
6/30/2018	73	98	95
6/30/2019	77	100	98
6/30/2020	81		100
6/30/2021	85		
6/30/2022	89		
6/30/2023	93		
6/30/2024	97		
6/30/2025	100		

* CERS employer contribution rates set at 13.50% and 29.50% for non-hazardous and hazardous respectively for FY 2008-2009.

Appendix C

Cavanaugh Macdonald Ten Year UAL Projection

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

August 28, 2008

Mr. William A. Thielen
Chief Operations Officer
Kentucky Retirement Systems
Perimeter Park West
1260 Louisville Road
Frankfort, KY 40601

Subject: Ten Year UAL Projection

Dear Bill:

This letter will serve to document the results of the requested ten year projection of unfunded accrued liability for each of the KRS funds.

The projections were performed using the June 30, 2007 valuation results as a base, and projecting active and retired memberships for each of the funds over the ten year period assuming the active population remained constant in number. We then performed valuations of the populations annually to develop the contribution rates. The rates in future years assumed all actuarial assumptions were met each year and that funding was as required under HB 1, including using the 7.75% interest rate for KERS non-hazardous and SPRS insurance benefits. In addition, the CERS insurance rates reflect the five year phase-in adopted by the Board of Trustees that runs through the fiscal year ending June 30, 2012. Finally, the results reflect the 1.5% COLA and, as noted, the ARC phase-in stipulated in HB 1. As previously discussed, the results do not reflect the change in benefit structure for those hired on and after September 1, 2008. That change would have only a minor impact on the results shown.

The tables below show the unfunded accrued liabilities for each of the funds over the ten year period.

KERS Unfunded Accrued Liability

Valuation Date June 30	Non-Hazardous Members		Hazardous Members	
	Pension	Insurance	Pension	Insurance
2007	$4,089,156,818	$2,449,956,249	$91,704,520	$253,306,225
2008	4,315,577,121	2,662,497,812	82,881,666	262,058,244
2009	4,598,261,378	2,874,449,792	76,939,268	273,382,824
2010	4,895,298,124	3,084,846,586	71,443,362	285,163,399
2011	5,210,456,502	3,293,832,038	72,281,976	295,599,042
2012	5,608,125,207	3,505,951,974	82,931,826	310,772,006
2013	6,005,142,983	3,710,282,011	94,061,649	324,474,730
2014	6,399,348,154	3,906,823,041	105,326,180	336,638,646
2015	6,785,707,807	4,092,348,524	116,598,179	346,979,019
2016	7,159,203,790	4,265,065,513	127,881,011	355,847,138
2017	7,514,789,303	4,422,227,291	138,947,851	363,120,089

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com

CERS Unfunded Accrued Liability

Valuation Date June 30	Non-Hazardous Members Pension	Non-Hazardous Members Insurance	Hazardous Members Pension	Hazardous Members Insurance
2007	$1,191,621,646	$2,373,680,170	$569,447,255	$1,133,533,462
2008	1,153,593,208	2,460,129,322	555,887,417	1,179,804,353
2009	1,176,286,859	2,590,551,709	564,048,789	1,241,977,139
2010	1,050,368,585	2,696,219,712	564,565,388	1,291,221,964
2011	928,610,735	2,777,033,291	571,115,283	1,327,255,927
2012	884,527,671	2,847,507,128	605,141,705	1,355,778,763
2013	844,657,657	2,899,026,652	642,191,842	1,379,727,965
2014	803,937,422	2,946,574,616	680,698,499	1,402,248,555
2015	762,568,411	2,988,725,929	719,952,426	1,422,721,463
2016	720,167,955	3,026,362,023	760,261,680	1,441,454,915
2017	676,526,895	3,059,019,044	801,533,755	1,458,269,172

SPRS Unfunded Accrued Liability

Valuation Date June 30	Pension	Insurance
2007	$199,148,778	$126,149,744
2008	207,498,468	130,168,857
2009	218,718,806	135,661,264
2010	230,603,309	140,971,281
2011	244,221,472	146,958,852
2012	262,467,067	155,566,456
2013	280,470,063	163,941,526
2014	297,863,283	171,393,403
2015	314,451,858	178,184,626
2016	329,848,515	183,942,288
2017	343,606,783	188,487,657

Please let us know if there are any further details we may provide.

Sincerely,

Thomas J. Cavanaugh FSA, FCA, MAAA, EA
Chief Executive Officer

Copy to: R. Burnside

S:\Kentucky Retirement Systems\2008\Miscellaneous Correspondence\KRS Ten Year Projection with HB1 Funding.doc

Appendix D

Presentation from KRS and Cavanaugh Macdonald
at August 7, 2008 Subcommittee Meeting

Kentucky Funding Working Group

HB 1 FUNDING PLAN

August 7, 2008

HB 1 FUNDING PLAN

- Beginning 7-1-2010 (the start of the next budget biennium), the General Assembly has the "intention" of increasing the employer contribution to KERS Nonhazardous, KERS Hazardous, and SPRS plans to gradually, over a period of up to 15 years, reach 100% of the Actuarially Required Contribution (ARC).

CURRENT FUNDING (FY- 2009)

	Valuation Rate*	ARC**	Actual	% of ARC
KERS Nonhazardous	36.92%	28.60%	10.01	35%
KERS Hazardous	34.78%	34.78%	24.35	70%
SPRS	91.93%	60.14%	30.07	50%

* Complies with GASB 43/45 by using a blended 4.5% assumed Rate Of Return on investments for KERS Nonhazardous and SPRS

** KRS Board adopted rates, which are "full funding" rates for KERS Nonhazardous and SPRS calculated by using a 7.75% assumed Rate of Return on investments

PROJECTED FUNDING (FY- 2010)

	Projected ARC	Actual	% of ARC
KERS Nonhazardous	29.49%	11.61%	39%
KERS Hazardous	32.49%	24.69%	76%
SPRS	61.41%	33.08%	54%

HB 1 FUNDING PLAN
KERS Nonhazardous

1. Forty-four percent (44%) - July 1, 2010
2. Forty-eight percent (48%) - July 1, 2011
3. Fifty-three percent (53%) - July 1, 2012
4. Fifty-seven percent (57%) - July 1, 2013
5. Sixty-one percent (61%) - July 1, 2014
6. Sixty-five percent (65%) - July 1, 2015
7. Sixty-nine percent (69%) - July 1, 2016
8. Seventy-three percent (73%) - July 1, 2017
9. Seventy-seven percent (77%) - July 1, 2018
10. Eighty-one percent (81%) - July 1, 2019
11. Eighty-five percent (85%) - July 1, 2020
12. Eighty-nine percent (89%) - July 1, 2021
13. Ninety-three percent (93%) - July 1, 2022
14. Ninety-seven percent (97%) - July 1, 2023
15. One-hundred percent (100%) - July 1, 2024

HB 1 FUNDING PLAN
KERS Hazardous

1. Seventy-six percent (76%) - July 1, 2010
2. Seventy-nine percent (79%) - July 1, 2011
3. Eighty-three percent (83%) - July 1, 2012
4. Eighty-six percent (86%) - July 1, 2013
5. Eighty-nine percent (89%) - July 1, 2014
6. Ninety-two percent (92%) - July 1, 2015
7. Ninety-five percent (95%) - July 1, 2016
8. Ninety-eight percent (98%) - July 1, 2017
9. One-hundred percent (100%) - July 1, 2018.

HB 1 FUNDING PLAN
SPRS

1. Sixty percent (60%) - July 1, 2010
2. Sixty-five percent (65%) - July 1, 2011
3. Seventy percent (70%) - July 1, 2012
4. Seventy-five percent (75%) - July 1, 2013
5. Eighty percent (80%) - July 1, 2014
6. Eighty-five percent (85%) - July 1, 2015
7. Ninety percent (90%) - July 1, 2016
8. Ninety-five percent (95%) - July 1, 2017
9. Ninety-eight percent (98%) - July 1, 2018
10. One-hundred percent (100%) - July 1, 2019

2009 EMPLOYER DOLLAR CONTRIBUTION (ARC V. ACTUAL)

	2009 Projected Payroll		ARC		$ Contribution
KERS Nonhaz	$1,796,664,481	x	28.60%	=	$513,846,042
KERS Haz	$149,786,271	x	34.78%	=	$52,095,665
SPRS	$48,924,096	x	60.14%	=	$29,422,951
					$595,364,658

	2009 Projected Payroll		Actual		$ Contribution	
KERS NonHaz	$1,796,664,481	x	10.01%	=	$179,664,481	(35%)
KERS Haz	$149,786,271	x	24.35%	=	$36,472,957	(70%)
SPRS	$48,924,096	x	30.07%	=	$14,711,776	(50%)
					$230,848,914	(39%)

2010 EMPLOYER DOLLAR CONTRIBUTION (ARC V. ACTUAL)

	2010 Projected Payroll		ARC		$ Contribution
KERS Nonhaz	$1,828,966,836	x	29.49%	=	$539,362,320
KERS Haz	$155,273,381	x	32.49%	=	$50,448,321
SPRS	$49,391,547	x	61.41%	=	$30,331,349
					$620,141,990

	2009 Projected Payroll		Projected ARC		$ Contribution	
KERS NonHaz	$1,828,966,836	x	11.61%	=	$212,343,050	(39%)
KERS Haz	$155,273,381	x	24.69%	=	$38,336,998	(76%)
SPRS	$49,391,547	x	33.08%	=	$16,338,724	(54%)
					$267,018,772	(43%)

Kentucky Funding Working Group

Actuarial Principles

August 7, 2008

Basic Retirement Funding Equation

$$\mathbf{C + I = B + E}$$

C = Contributions
I = Investment Income
B = Benefits Paid
E = Expenses (administration)

Basic Retirement Funding Equation

$$C + I = B + E$$

B depends on

- Plan Provisions
- Experience

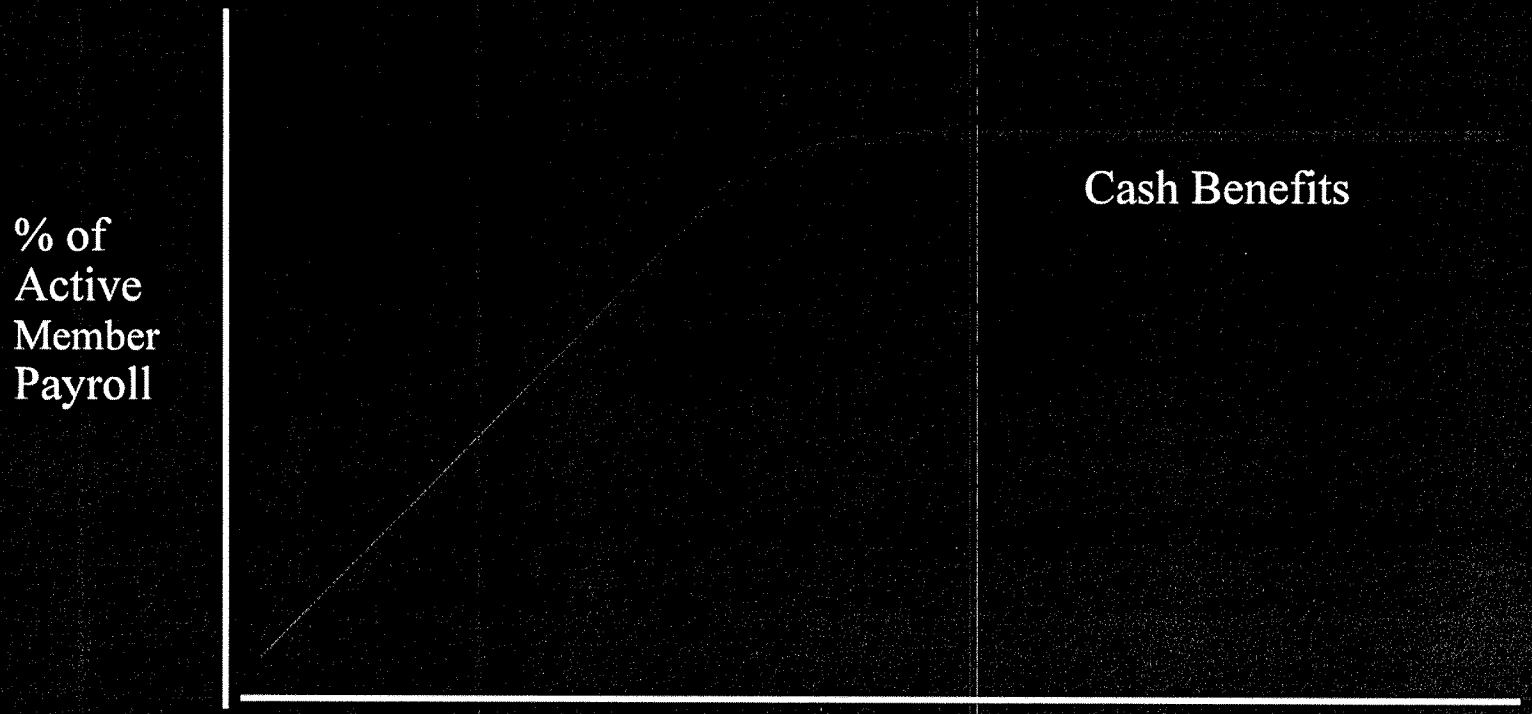
C depends on

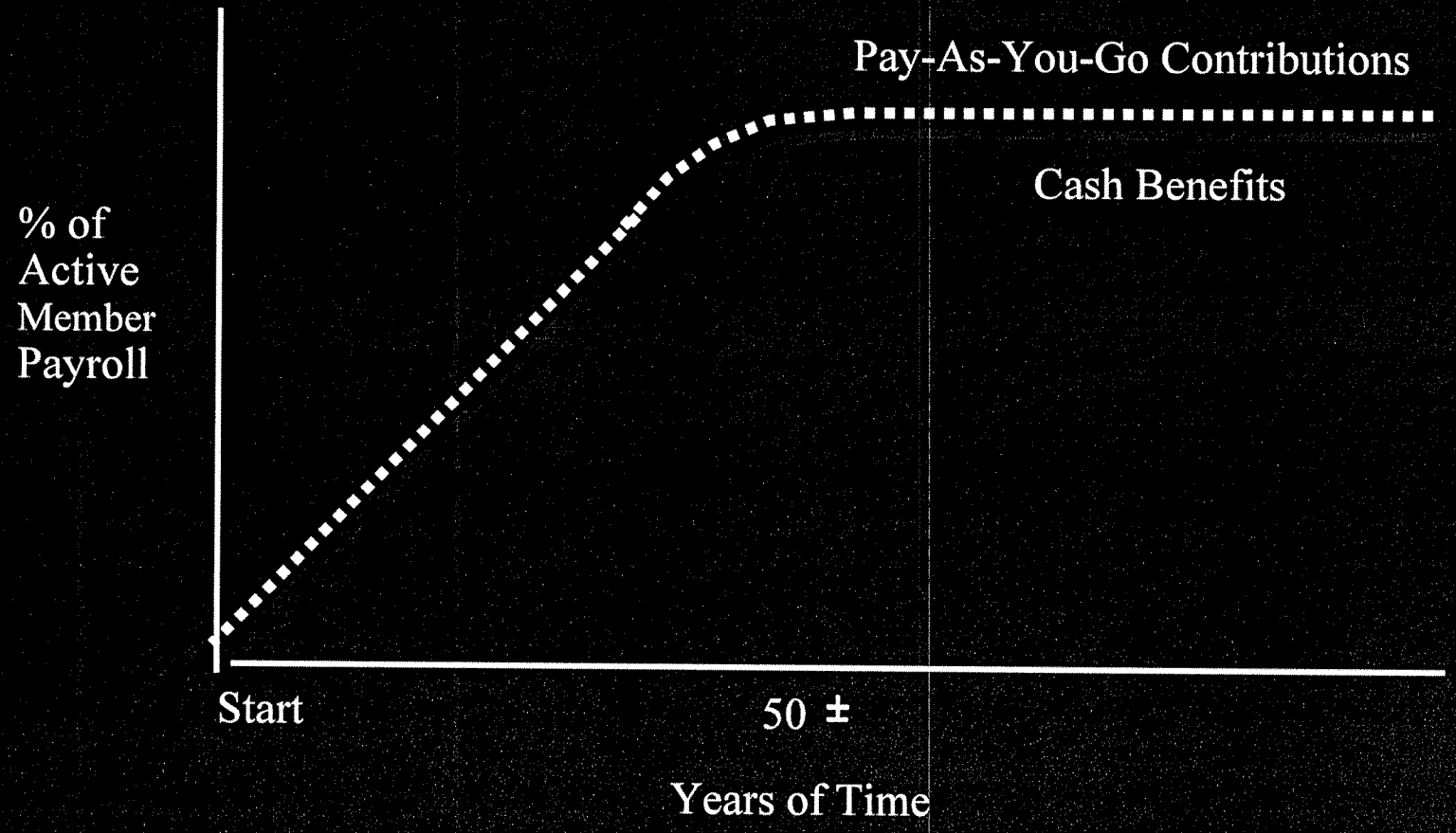
- Short Term: Actuarial Assumptions
  Actuarial Cost Method
- Long Term: I, B, E

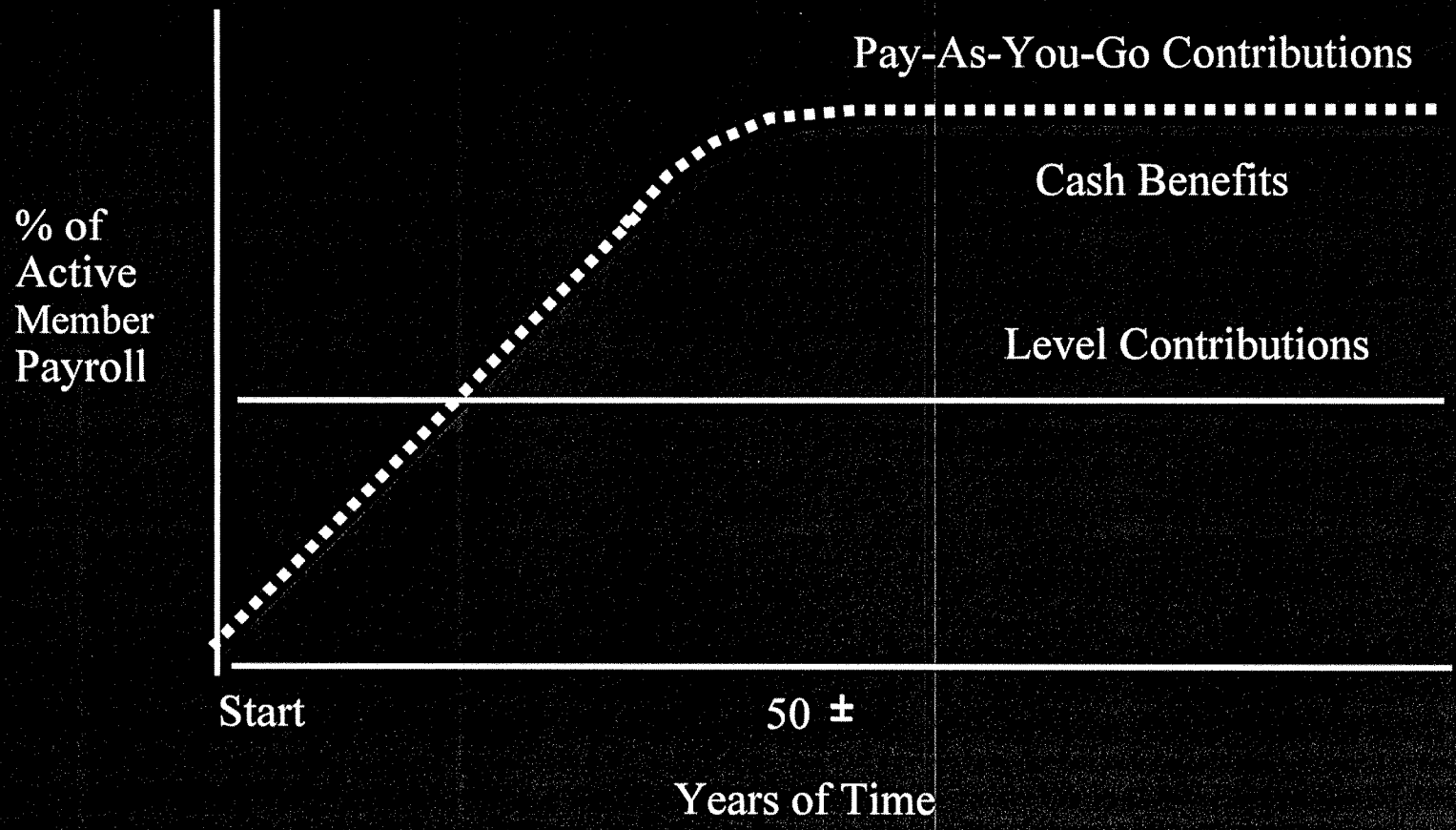
Two fundamentally different methods of financing retirement benefits

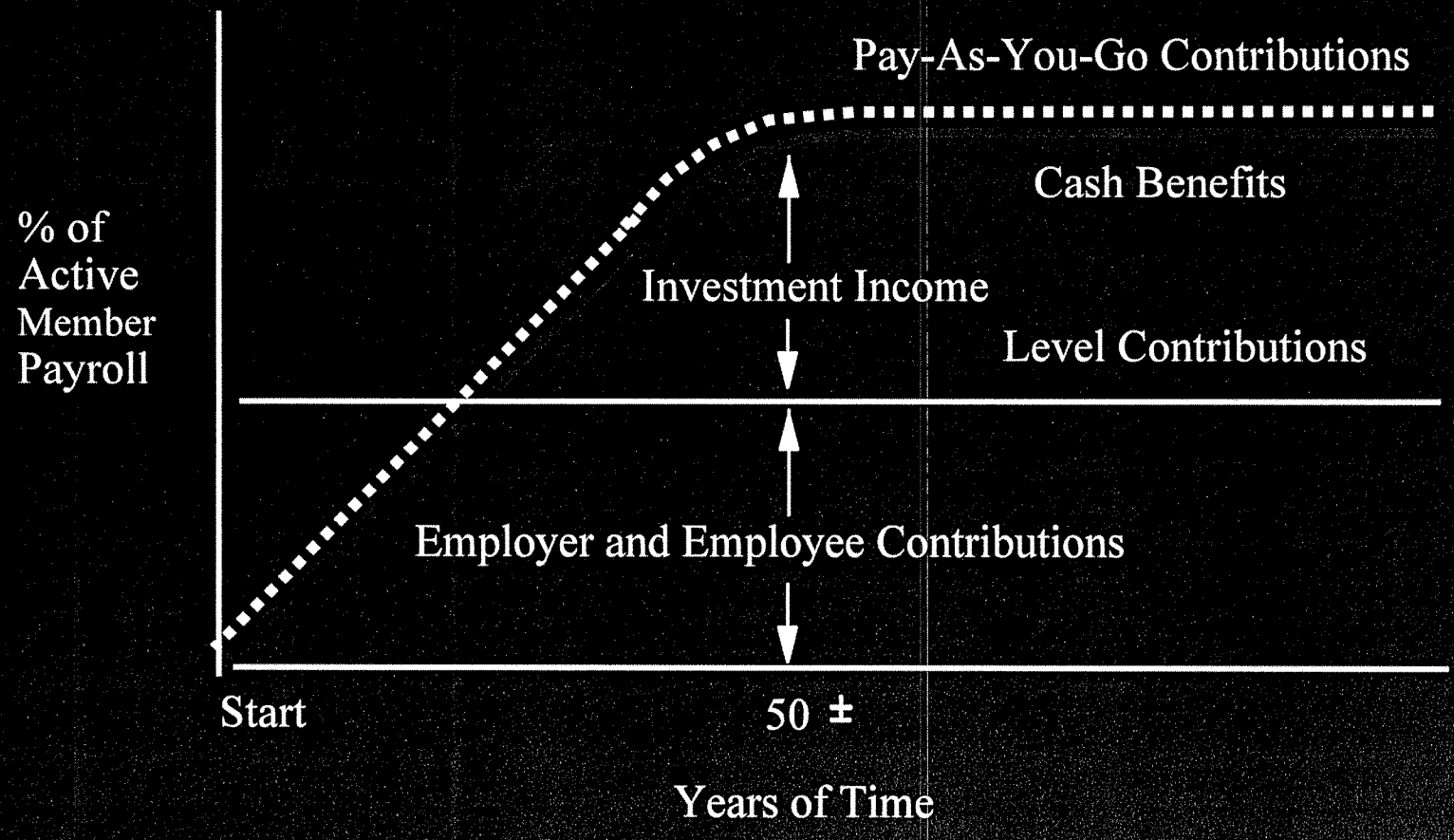
OASDI: "Owe as you go"
Current generation pays benefits of prior generation.

Most PERS: "Save as you go"
Current generation saves money for its own retirement; prior generation did the same.


% of
Active
Member
Payroll
Cash Benefits
Start
50 ±
Years of Time


Pay-As-You-Go Contributions
Cash Benefits
% of
Active
Member
Payroll
Start
50 ±
Years of Time


Pay-As-You-Go Contributions
Cash Benefits
% of
Active
Member
Payroll
Level Contributions
Start
50 ±
Years of Time


Pay-As-You-Go Contributions
Cash Benefits
% of
Active
Member
Payroll
Investment Income
Level Contributions
Employer and Employee Contributions
Start
50 ±
Years of Time

Fundamentals of Actuarial Valuations & Plan Sponsor Liabilities

Present Value

The present value of an amount of money payable in the future is the amount of money that, if we had it today, would accumulate to the amount that will be payable considering

- Investment Return
- Probability that money will be paid

Present Value

Example 1: You owe $1,000 to a financial institution payable one year from now. You estimate that you can invest money for a 7% return. What is the present value of the debt?

$$\frac{\$1,000}{1.07} = \$934.58$$

Observation : What if you're mistaken about the 7%?

Present Value

Example 2: You owe $1,000 to a person payable one year from now. The person is 70 years old. The person has no heirs. You estimate that you can invest money for a 7% return. You estimate that the chance that the person will be alive to collect the debt is 98%. What is the present value of the debt?

$$\frac{\$1{,}000}{1.07} \times 98\% = \$915.89$$

Observation : If the person dies, you'll have money left over. If the person lives, you won't have enough to pay the debt.

Present Value

Example 3: You owe $1,000 to 100 people one year from now. Each person is 70 years old. You expect the same return (7%) and chance each person will be alive in one year (98%). What is the present value of the debt?

$$100 \times \frac{\$1{,}000}{1.07} \times 98\% = \$91{,}589$$

Observation: Under what circumstances will you have exactly enough money to pay the debt?

Actuarial Valuation Process

Present Value
at Expected Retirement Date
of Future Benefits

Discounted for:

1. assumed rate(s) of investment earnings
2. assumed rates of non-death terminations
3. assumed death rates before retirement

Present Value at Valuation Date
of Future Benefits

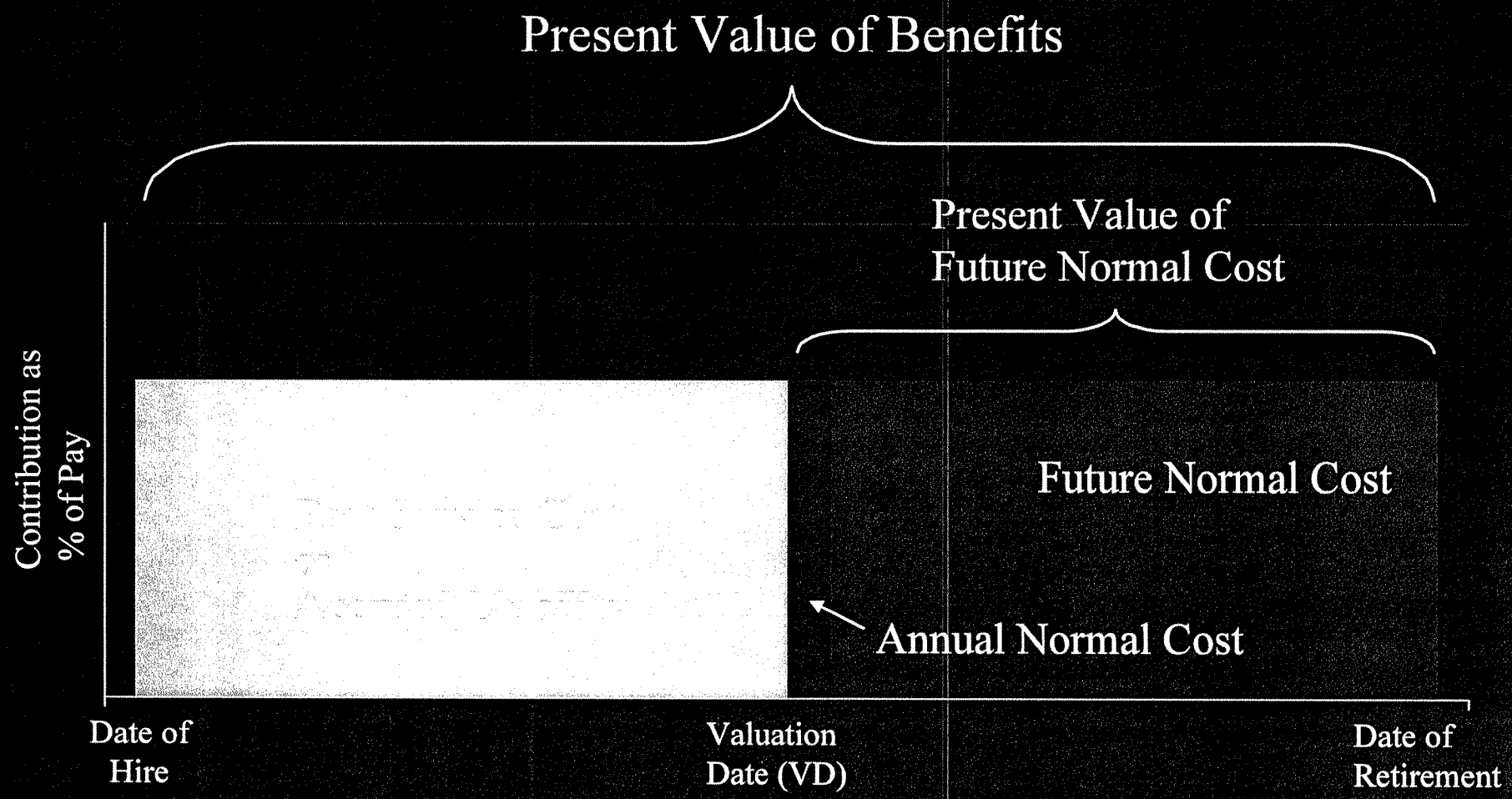
Allocated Using Funding Method

Actuarial
Accrued Liability

Present Value of
Future Normal Cost

Actuarial Accrued Liability
- Valuation Assets
= Unfunded Actuarial Accrued Liability

Funding Process - EAN



Accrued Liability - Assets = Unfunded/(Surplus)

Assumption Types

- Decremental
- Economic

Decremental

- Withdrawal
- Death while active
- Disability
- Retirement
- Death after retirement

Economic

- Inflation
- Real return for assets
- Salary increases
- COLA's

Valuation Results

Normal Cost	Value of this year's expected benefit accruals
UAL	Unfunded Liability

"Unfunded Liabilities" are a natural part of retirement system funding, comparable to a mortgage on a home. "Negative Unfunded" represents a surplus

ARC Development – KERS Non-Hazardous (Pension)

	Contribution for		Amount	% of Payroll
A	Normal Cost:			
	(1) Service retirement benefits	$	120,395,868	7.10%
	(2) Disability benefits		15,843,989	0.89
	(3) Survivor benefits		4,094,514	0.23
	(4) Total	$	146,334,371	8.22%
B.	Member Contributions	$	89,011,175	5.00%
C.	Employer Normal Cost: [A(4) B]	$	57,323,196	3.22%
D.	Administrative Expenses	$	7,082,562	0.40%
E.	Unfunded Actuarial Accrued Liability Contributions*:			
	(1) UAAL Contribution Based on 6/30/06 Valuation:	$	210,630,306	11.83%
	(2) Change due to			
	a. Active decrements	$	3,660,603	0.21%
	b. Pay increases		450,145	0.03
	c. Retiree mortality		22,507	0.00
	d. Investment return		(3,066,614)	(0.17)
	e. COLA		11,928,816	0.67
	f. Assumption Change		0	0.00
	g. Other		6,447,299	0.35
	h. Total Change	$	19,450,866	1.09%
	(3) UAAL Contribution Based on 6/30/07 Valuation: [E(1) + E(2)h]	$	230,080,252	12.92%
F	Total Recommended Employer Contribution Rate: [C + D + E(3)]	$	294,405,010	16.54%

*Based on 30 year amortization of the UAAL from June 30, 2007

ARC Development – KERS Nonhazardous (Insurance)

	Contribution for		Amount	% of Payroll
A.	Normal Cost:	$	184,600,233	10.37%
B.	Member Contributions*	$	0	0.00%
C.	Employer Normal Cost: [A - B]	$	184,600,233	10.37%
D.	Administrative Expenses	$	3,199,131	0.18%
E.	Unfunded Actuarial Accrued Liability**:	$	174,908,014	9.83%
F	Total Recommended Employer Contribution Rate: [C+D+E]	$	362,707,378	20.38%

*The liabilities are net of retiree contributions towards their healthcare
** Based on 30 year amortization of the UAAL from June 30, 2007

Causes of Unfunded Actuarial Accrued Liabilities

1. Granting initial benefits or granting benefit increases for service already rendered.
2. Actual experience which is less favorable than assumed. Examples follow:
    a. higher salary increases
    b. earlier retirement date(s)
    c. lower death rates
    d. lower rates of investment earnings
    e. lower rates of non-death terminations
3. Contributions less than required.

Funding Ratio vs. ARC

- They are not the same
- Paying 100% of the ARC does not necessarily mean 100% funding ratio
- Funding Ratio is a measure of funding progress
- ARC is current year funding requirement

Case Study of Benefit Change

Normal Cost	5%	x 1.10 =	5.5%
Accrued Liabilities	$100 Million	x 1.10 =	$110 Million
Assets	90 Million		90 Million
UAL	10 Million		20 Million
% to Amortize	2.0%		4.0%
Total Contribution	7.0%		9.5%

Impact of HB1

- UAL and ARC will continue to grow
  - 15 year underfunding built in
  - 1.5% COLA only added as it occurs
  - Negative experience is possible (as is positive experience)

Appendix E

Presentation from KTRS at August 22, 2008
Subcommittee Meeting

Kentucky Teachers' Retirement System

"An Overview of the Kentucky Teachers' Retirement System"

Gary L. Harbin, CPA
Executive Secretary

August 22, 2008

Information prepared for

Kentucky Public Pension Working Group

State Funding Subcommittee

Kentucky Teachers' Retirement System

Established in 1938, KTRS provides

Retirement Security

For Kentucky's Educators

Kentucky Teachers' Retirement System
A Brief History

- In 1936, the University of Kentucky studied the possible need for a retirement system for teachers and concluded:
    - Teachers could not afford to retire.
    - School districts were faced with continued employment of teachers unable to perform effectively.
    - Teachers were not allowed to participate in Social Security.
    - Kentucky was finding it hard to attract and retain teachers.
- KTRS was established in 1938 and funded by the General Assembly in 1940.

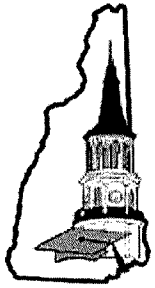
KTRS was established by the General Assembly in 1938 and funded in 1940

A Defined Benefit Group Retirement Plan was established to provide retirement benefits for local school districts and other public educational agencies in the state.

Current employers comprised of:

175 local school districts

17 Department of Education Agencies



Five Regional Universities & all Community Colleges

KCTCS

KTRS is unique when compared to other public pension plans

- Most members are not subject to Social Security.
- By statute, there is a fixed employer contribution rate.
- Retiree health care benefits are provided.
- COLAs are funded.
  - Base COLA of 1.5% is pre-funded.
  - Ad Hoc COLAs, if awarded, are funded in the biennial budget process.

KTRS is a comprehensive Defined Benefit Group Retirement Plan

Benefits Summary

Active Member Benefits

- Provides benefits in the event members become disabled.
- Provides benefits to survivors in the event of members deaths.
- Life insurance benefit of $2,000.

KTRS is a comprehensive Defined Benefit Group Retirement Plan

Benefits Summary

Retired Member Benefits

- Defined benefit group retirement plan with lifetime guaranteed retirement benefits.
- Life insurance benefit of $5,000.
- Annual cost-of-living increases (COLA).
  - 1.5% included in current contribution rates.
  - Ad hoc COLAs when approved in the biennial budget process.
- Retiree medical benefits.

Calculation of Retirement Benefits

1. **Retirement with 27 years of service**
   - **General Benefit formula =**
     Years of Service x multiplier x 5 highest salaries
2. **Multiplier of 2.0/2.5%/3.0%** ***(for new hires after July 1, 2002)***
3. **High 3 salaries at age 55 and 27 years of service**
   - *Discounted retirement allowance for members with less than 27 years of service and less than age 60, but at least age 55.*

Field of Membership

as of December 2007

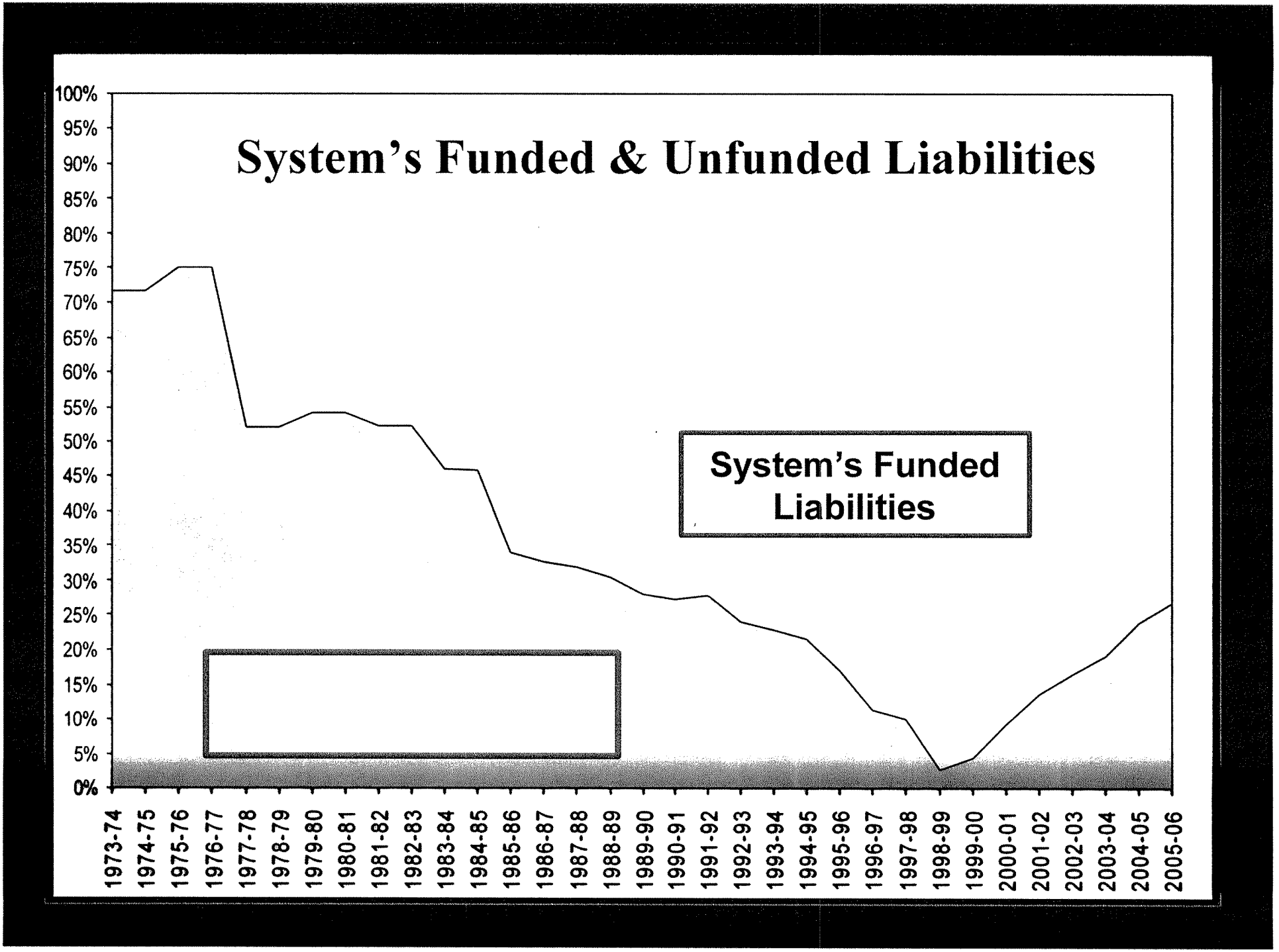
Active	**0 – 26 Years**	**Non-eligible**	**44,531**
	27+ Years*	**Eligible**	**14,620**
	Total Active		**59,151**
	Sub/PT/Retired Return to Work		**15,527**
	Total Contributing Members		**74,678**

Inactive	**16,579**
Retired, Beneficiaries & Survivors	**40,347**
Total	**131,604**

** and/or age 55 with 5 or more years of service within the next fiscal year*

Recap of Actuarial Status of the System
at June 30, 2007

	Assets	Liabilities	Unfunded	Percent
Pre-funded **Retirement Benefit**	15,285.0	21,255.0	5,970.0	71.9%
Pay-as-you-go **Medical Benefit**	140.8	5,928.8	5,788.0	2.4%
	15,425.8	27,183.8	11,758.0	

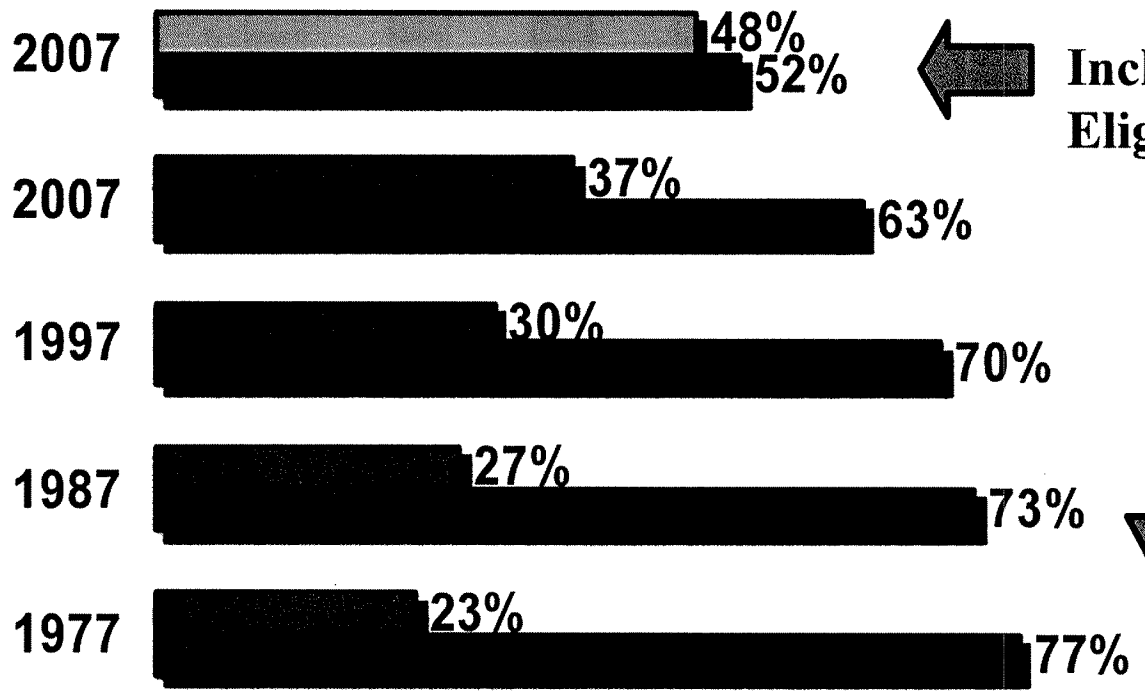

System's Funded & Unfunded Liabilities
System's Funded Liabilities
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1973-74
1974-75
1975-76
1976-77
1977-78
1978-79
1979-80
1980-81
1981-82
1982-83
1983-84
1984-85
1985-86
1986-87
1987-88
1988-89
1989-90
1990-91
1991-92
1992-93
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06

Review of Kentucky Retired Teachers' Health Benefits

KTRS Medical Benefit

- Funding for retiree medical insurance is on a pay-as-you-go basis (started in 1964).
- ¾ of 1% member contribution + ¾ of 1% employer contribution = 1.5% of payroll.
- Medical costs have increased as well as number of covered retirees.
- The State is redirecting contributions from the Pension Plan, with the promise to repay, to fund retiree healthcare.
- Need for medical insurance funding to be in the General Budget in lieu of borrowing from the KTRS Pension Fund.

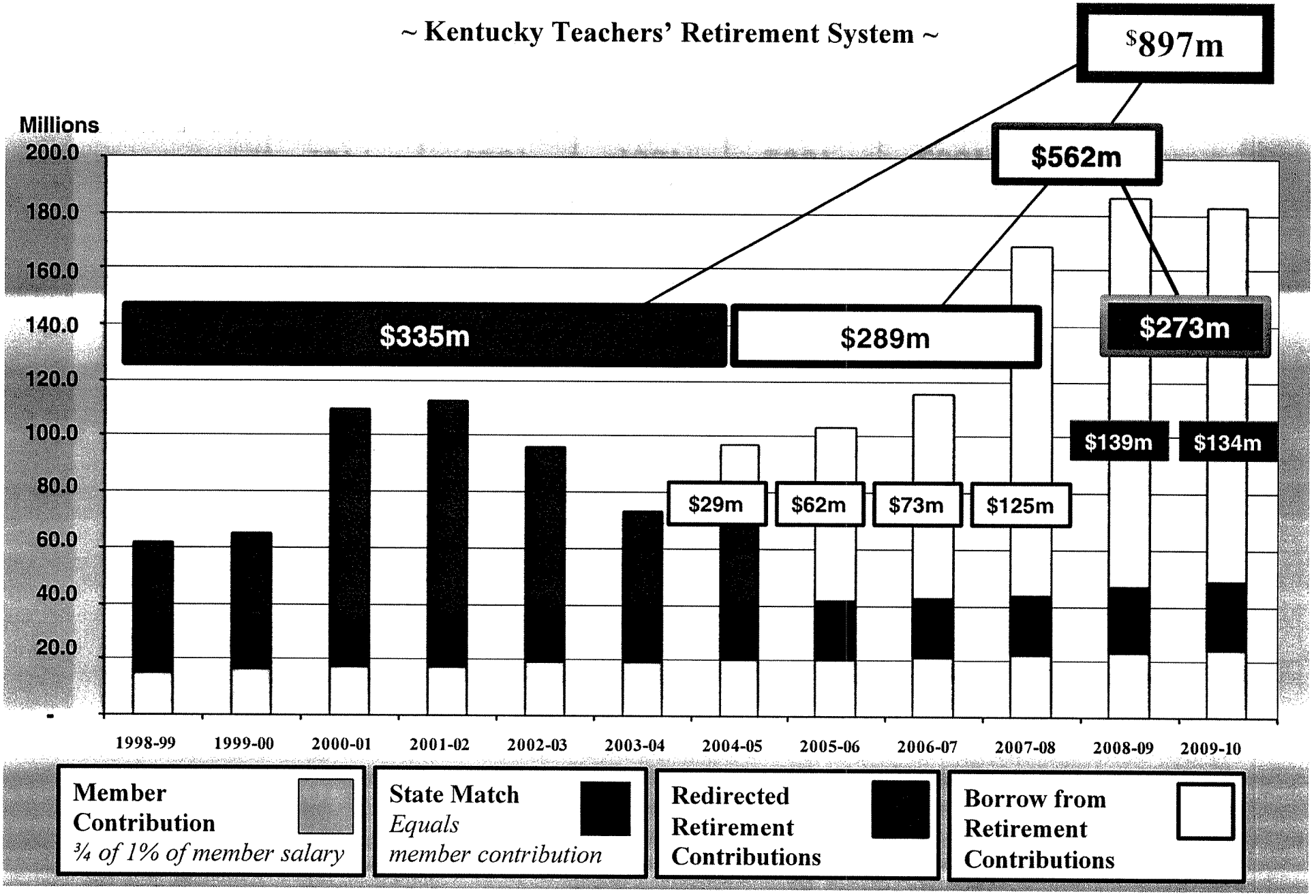
Ratio of Active Teachers to Retired Teachers



	1977	1987	1997	2007	2007
Retired	23%	27%	30%	37%	48%
Active	77%	73%	70%	63%	52%

Primary Funding for Medical Insurance Fund

~ Kentucky Teachers' Retirement System ~



Actuarial Update

KTRS Pension Fund:

- Redirecting contributions from the Pension Fund to sustain retiree medical insurance does impact actuarial soundness.
- Most recent actuarial report informed KTRS of need for an employer contribution increase in the 2008 Regular Session from 1.32% to 1.88%.
- Funding for this was not included in the budget.

Cumulative Increase in Required Employer Contribution Rate

Valuation Date	Fiscal Year	Increase	Cumulative Increase
June 30, 2004	June 30, 2007	0.11%	0.11%
June 30, 2005	June 30, 2008	1.21%	1.32%
June 30, 2006	June 30, 2009	0.56%	1.88%
June 30, 2007	June 30, 2010	0.58%	2.46%

Schedule of Employee/Employer Contribution Rates

For members hired before July 1, 2008

Local School Districts/KCTCS/Dept of Ed/Other (Non-University)

	Employee	*Employer*	*Total*	*Salaries FY 2006*
Fixed Contribution by Statute	9.855%	13.105%	22.960%	
State Special		4.250%	4.250%	
Required Increase		1.880%	1.880%	
Total	9.855%	19.235%	29.090%	2,683,342,000
Social Security	0.000%	0.000%	0.000%	-
Total	9.855%	19.235%	29.090%	2,683,342,000

University

	Employee	*Employer*	*Total*	*Salaries FY 2006*
Fixed Contribution by Statute	8.375%	11.625%	20.000%	
State Special		4.250%	4.250%	
Required Increase		1.880%	1.880%	
Total	8.375%	17.755%	26.130%	176,135,000
Social Security	6.200%	6.200%	12.400%	176,135,000
Total	14.575%	23.955%	38.530%	176,135,000

Schedule of Employee/Employer Contribution Rates

For members hired after June 30, 2008

Local School Districts/KCTCS/Dept of Ed/Other (Non-University)

	Employee	*Employer*	*Total*
Fixed Contribution by Statute	10.855%	14.105%	24.960%
State Special		4.250%	4.250%
Required Increase		1.880%	1.880%
Total	10.855%	20.235%	31.090%
Social Security	0.000%	0.000%	0.000%
Total	10.855%	20.235%	31.090%

University

	Employee	*Employer*	*Total*
Fixed Contribution by Statute	9.375%	12.625%	22.000%
State Special		4.250%	4.250%
Required Increase		1.880%	1.880%
Total	9.375%	18.755%	28.130%
Social Security	6.200%	6.200%	12.400%
Total	15.575%	24.955%	40.530%

KTRS Major Efforts to Contain Retirement and Healthcare Costs

1992

- Self-insurance used for retirees.

1998

- Air-time purchases at full actuarial cost.
- High 3 at age 55 with 27 years of service.

2001

- Eliminated double-dipping of medical benefits.

KTRS Major Efforts to Contain Retirement and Healthcare Costs

2002

- **Medical insurance benefit reduced for new hires.**
- **Return-to-work salaries limited after required breaks-in-service.**
- **Limit on number of retirees that can return full-time.**

KTRS Major Efforts to Contain Retirement and Healthcare Costs

2002 continued …

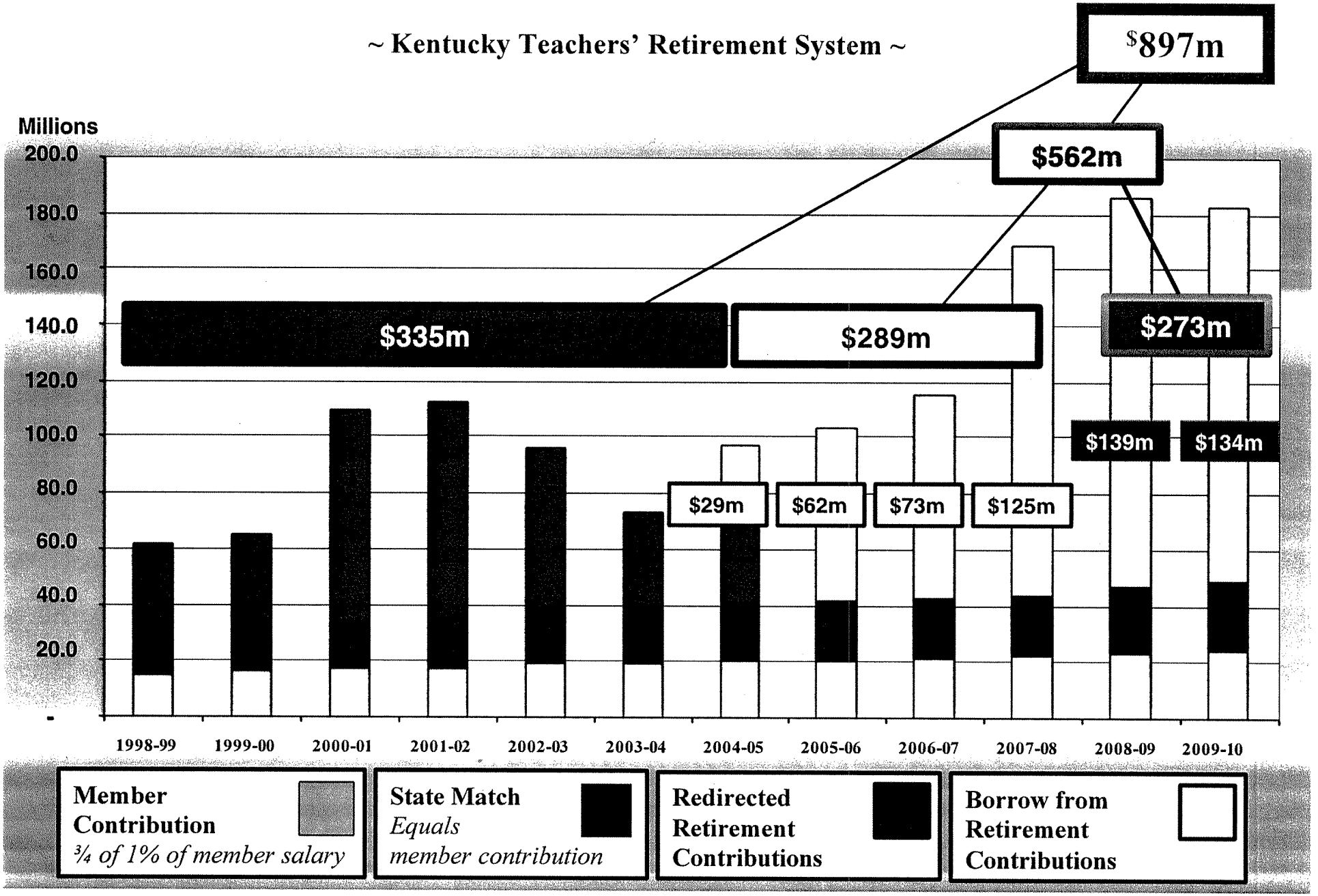
- **Benefit multipliers lowered for new hires.**
- **Field of membership significantly expanded.**
- **Disability retirement reformed.**

2004

- **Service credit purchases moved to full actuarial cost.**
- **Legislation passed requiring stabilization contribution to Medical Insurance Fund.**

Primary Funding for Medical Insurance Fund

~ Kentucky Teachers' Retirement System ~



Kentucky Teachers' Retirement System

Retirement Trends

Analysis of June, July & August Retirements

2002 vs. 2007

	2002			2007		
SERVICE	Average Age	Count	*Percent*	Average Age	Count	*Percent*
< 27 years	60	259	*16%*	60	320	*28%*
27 – 27.99 years	52	546	*33%*	54	239	*21%*
28 + years	56	855	*51%*	56	572	*49%*
	55	1,660	*100%*	57	1,131	*100%*

KTRS Major Efforts to Contain Retirement and Healthcare Costs

Two Federal Programs Utilized to Save Medical Costs in the MEHP Program

2006

- **Medicare Prescription Part D.**
  - **Saves over $10 million annually.**

2007

- **Medicare Advantage Private Fee For Service.**
  - **Saves over $11 million annually.**

Board of Directors

Gary Harbin, President
Kentucky Teachers' Retirement System

Chris DeRose, Vice President
Ohio Public Employees Retirement System

Terri Bierdeman, Secretary-Treasurer
State Teachers Retirement System of Ohio

Jarvio Grevious
California Public Employees' Retirement System

Phil Stoddard
Michigan Office of Retirement Services

William Nail
Employees Retirement System of Texas

David Maurek
Colorado Public Employees' Retirement Association

PUBLIC SECTOR HEALTHCARE ROUNDTABLE

KTRS joined with other retirement systems to form the **Public Sector Healthcare Roundtable** to address retiree health care costs on a national level.

http://www.healthcareroundtable.net

The Average Career Educator

- Retires at age 56.
- With 30 years service.
- With a pension equal to 72% of their final average salary.
- With a medical benefit on a pay-as-you-go basis.
- **Does not have a social security benefit.**

High School

Certified Salary Schedule 2006-07

2%

Exp.	Rank III	Rank II	Rank I	Rank IAA	Rank IV
0	$ 30,397	$ 34,430	$ 38,671	$ 39,284	$ 27,771
1	$ 31,266	$ 35,029	$ 39,215	$ 39,880	$ 27,771
2	$ 32,136	$ 35,626	$ 39,813	$ 40,478	$ 27,771
3	$ 33,005	$ 36,223	$ 40,409	$ 41,074	$ 27,771
4	$ 33,874	$ 36,820	$ 41,004	$ 41,672	$ 27,771
5	$ 34,744	$ 37,418	$ 41,602	$ 42,270	$ 27,771
6	$ 35,614	$ 38,014	$ 42,198	$ 42,867	$ 27,771
7	$ 36,484	$ 38,612	$ 42,796	$ 43,463	$ 27,771
8	$ 37,354	$ 39,209	$ 43,393	$ 44,060	$ 27,771
9	$ 38,246	$ 39,804	$ 43,992	$ 44,658	$ 27,771
10	$ 39,138	$ 40,401	$ 44,587	$ 45,264	$ 27,771
11	$ 39,834	$ 40,999	$ 45,193	$ 45,879	$ 27,771
12	$ 40,316	$ 41,596	$ 45,806	$ 46,490	$ 27,771
13	$ 40,797	$ 42,193	$ 46,420	$ 47,104	$ 27,771
14	$ 41,277	$ 42,791	$ 47,032	$ 47,716	$ 27,771
15	$ 41,760	$ 43,388	$ 47,645	$ 48,331	$ 27,771
16	$ 42,239	$ 43,986	$ 48,258	$ 48,944	$ 27,771
17	$ 42,722	$ 44,582	$ 48,871	$ 49,558	$ 27,771
18	$ 43,202	$ 45,187	$ 49,485	$ 50,170	$ 27,771
19	$ 43,684	$ 45,800	$ 50,098	$ 50,783	$ 27,771
20	$ 44,164	$ 46,412	$ 50,711	$ 51,397	$ 27,771
21	$ 44,645	$ 47,026	$ 51,324	$ 52,009	$ 27,771
22	$ 45,133	$ 47,639	$ 51,938	$ 52,623	$ 27,771
23	$ 45,629	$ 48,252	$ 52,551	$ 53,236	$ 27,771
24	$ 46,121	$ 48,866	$ 53,164	$ 53,848	$ 27,771
25	$ 46,615	$ 49,480	$ 53,778	$ 54,462	$ 27,771
26	$ 47,110	$ 50,093	$ 54,390	$ 55,076	$ 27,771
27	$ 47,672	$ 50,654	$ 54,953	$ 55,536	$ 27,771

Salary Schedule was adopted by th School Board
on 06/05/06
Effective July 1, 2006

Salary Schedule

Showing typical teacher salary per year of service for 2006-07 school year.

Membership Analysis

August 2006 – July 2007

	Retirees for the period	New Hires for the period
Average beginning teaching age	27	31
Average contract salary	$58,363	$35,344
Average age at retirement	56	N/A
Average retirement benefit	$36,232	N/A

Savings to Local Districts and Other Employers

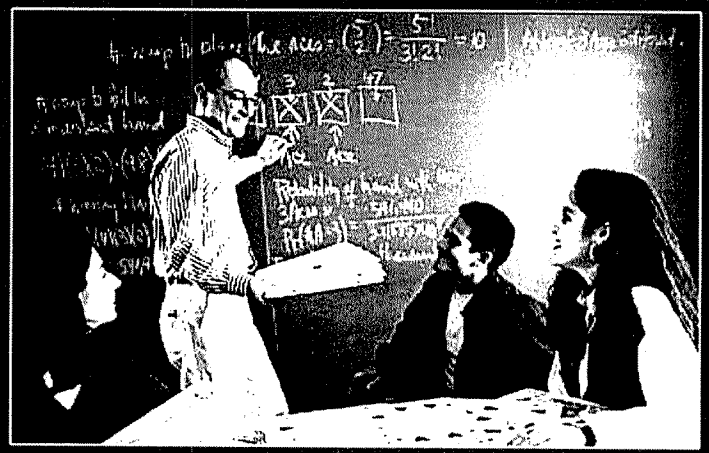
Average Retiring Members Pay	$57,110
Average New Full-time Members Pay	$34,631
------- *Difference* -------	$ 22,479
Number of Members Eligible to Retire	14,004
Savings to Local Districts & Other Employers	$315 Million per year

Positive Impact of KTRS

- *For Members*
- *For School Districts*
- *For State & Local Economies*

For Members

- **Provides retirement security for those who have devoted their careers to teaching.**
  - A life-time retirement benefit determined by the member's length of service and salary.
  - A medical benefit provided on a pay-as-you-go basis.

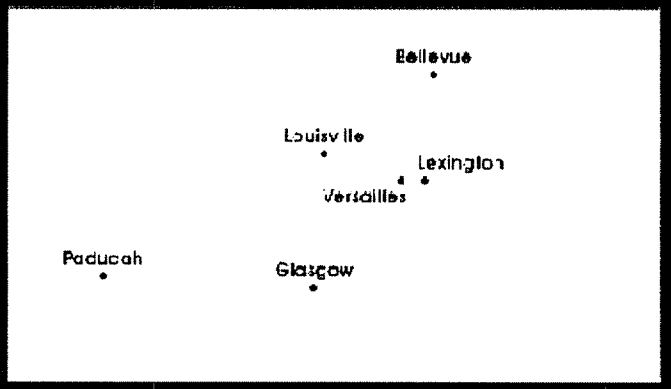


For School Districts

- Provides a benefit to attract and retain quality teachers.
- When teachers retire, this provides positions for new teachers and promotions for current teachers.
- When teachers retire, this reduces payroll costs as retiring teachers are replaced by new teachers.

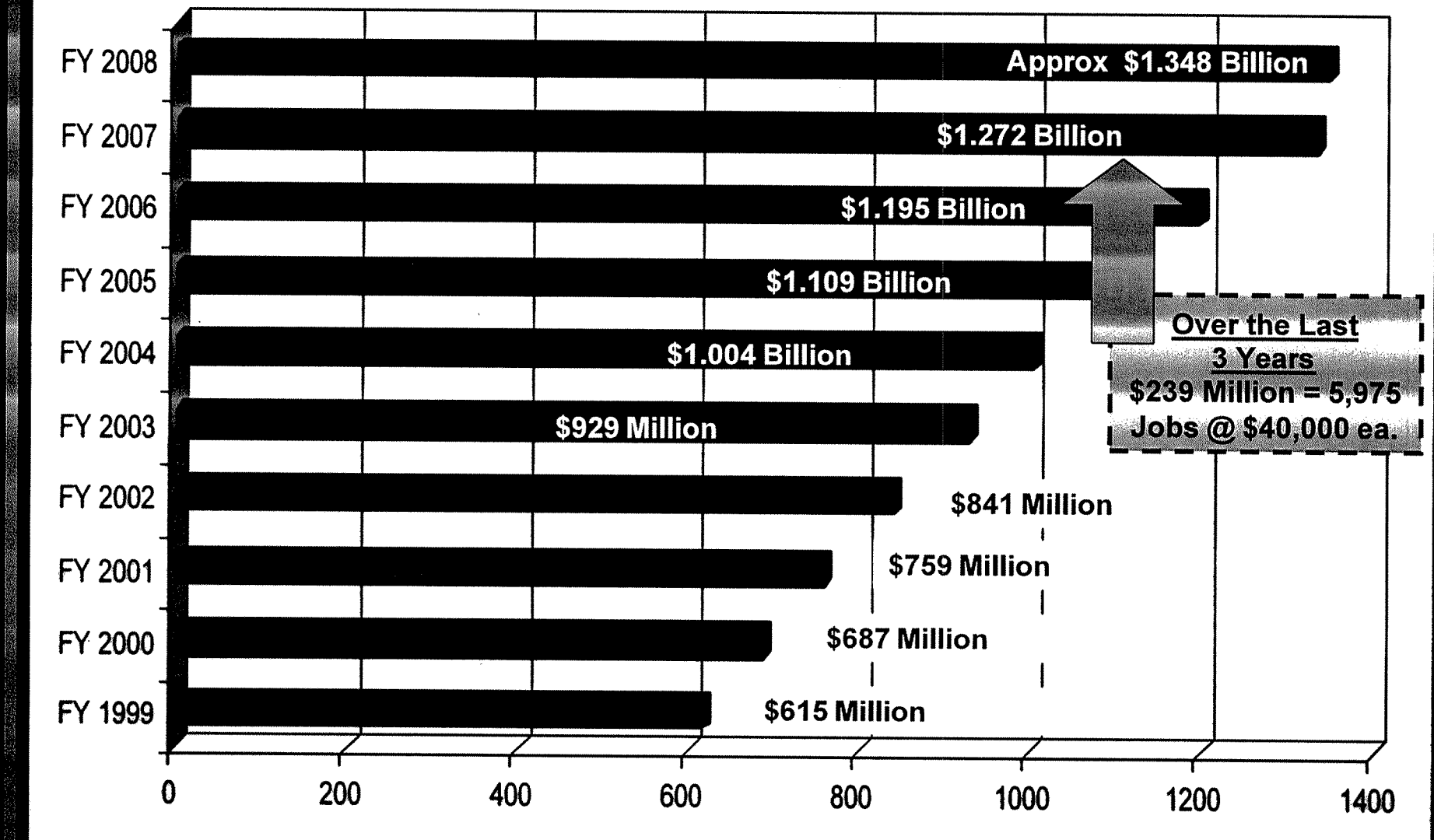
For State & Local Economies

- **KTRS pays <u>monthly</u>:**
  - $97 million in retirement annuity benefits
  - $14 million in medical benefits
- 40,347 retirees, beneficiaries & survivors
- 93% of KTRS retirees live in Kentucky

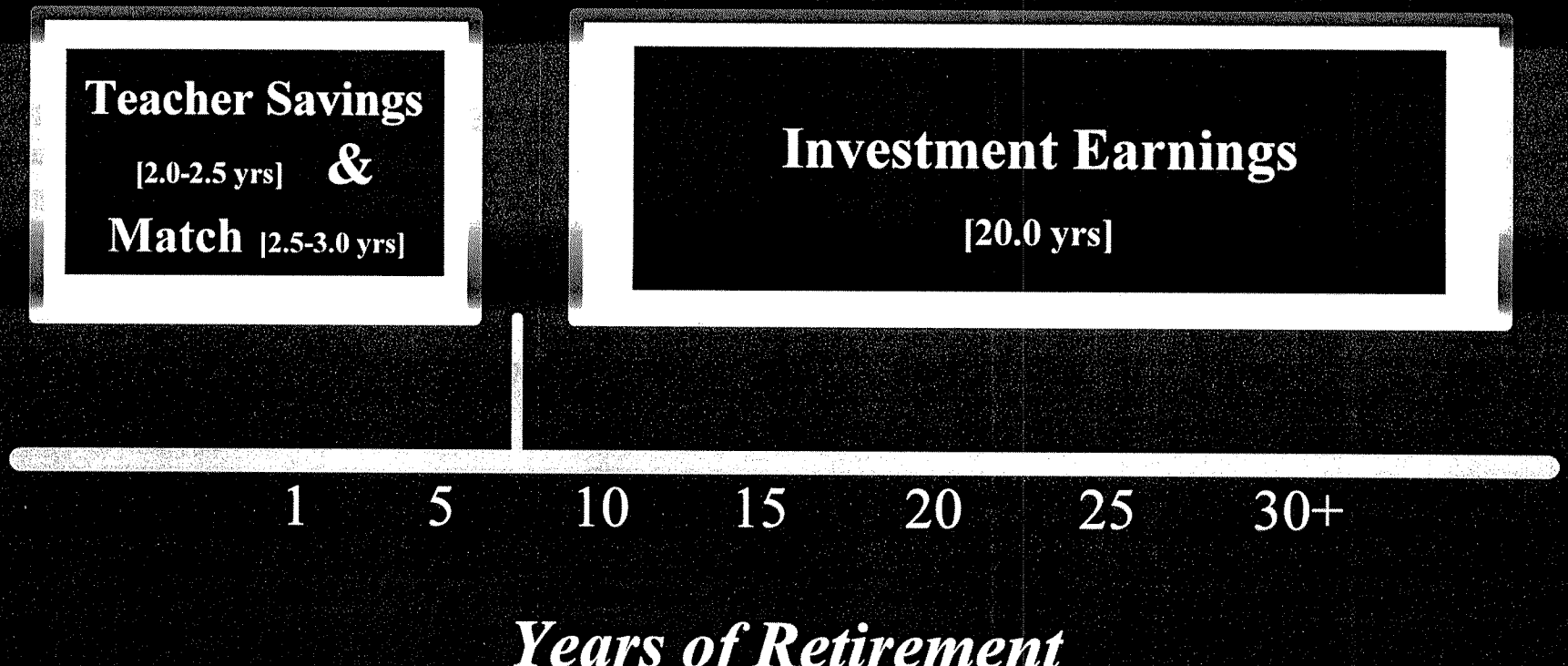


Retired teachers have a significant economic impact in every county in Kentucky.

KTRS Distributes Hundreds of Millions of Dollars Annually



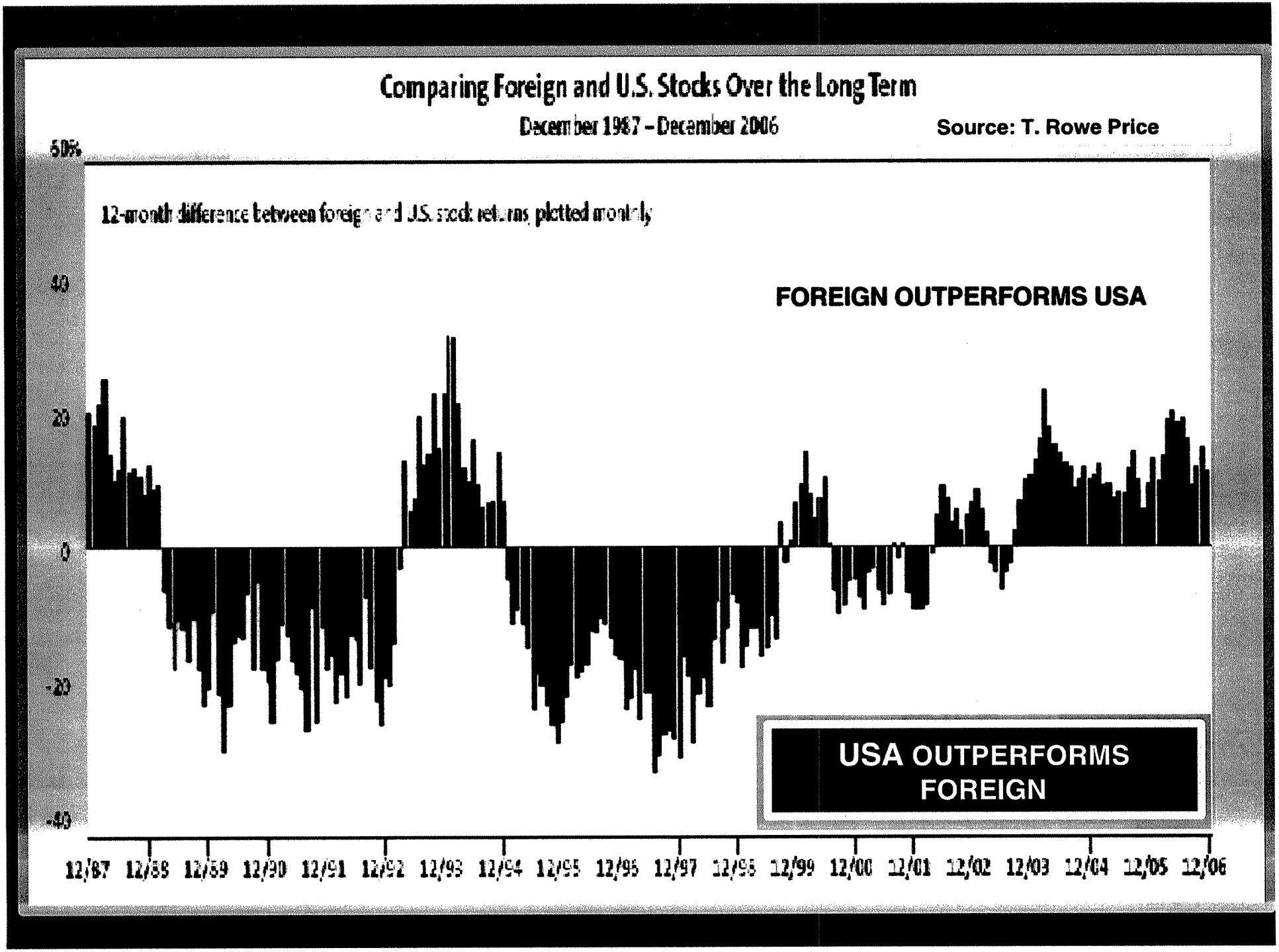
Teachers' Savings + Employer Match are Invested & Provide Benefits



Changes in Asset Allocation

FYE 2000, 2007, 2008 and Ranges/Targets FY 2008-2009

	~ ACTUAL ~			Strategic Ranges & Targets FY 2008-2009	
Asset Class Breakdown	**June 30, 2000**	**June 30, 2007**	**April 30, 2008**	**Range**	**Target**
Large Cap Stocks	55.1%	51.9%	48.6%	42.0 - 50.0%	45.0%
Mid Cap Stocks	0.0%	3.5%	4.1%	3.0 - 6.0%	5.0%
Small Cap Stocks	2.4%	3.0%	2.6%	2.0 - 4.0%	3.0%
International Stocks	0.0%	6.7%	9.4%	8.0 - 13.0%	11.0%
Total Stocks	**57.5%**	**65.1%**	**64.7%**	57.0 - 65.0%	64.0%
Fixed Income	33.9%	28.8%	29.9%	25.0 - 32.0%	28.0%
Cash	6.8%	3.6%	2.2%	2.0 - 4.0%	2.0%
Real Estate Equity	1.8%	2.5%	2.6%	3.0 - 5.0%	4.0%
Alternative	0.0%	0.0%	0.6%	0.0 - 2.0%	2.0%
Total	100.0%	100.0%	100.0%		100.0%


Comparing Foreign and U.S. Stocks Over the Long Term
December 1987 – December 2006
Source: T. Rowe Price
50%
12-month difference between foreign and U.S. stock returns, plotted monthly
40
20
0
-20
-40
FOREIGN OUTPERFORMS USA
USA OUTPERFORMS FOREIGN
12/87 12/88 12/89 12/90 12/91 12/92 12/93 12/94 12/95 12/96 12/97 12/98 12/99 12/00 12/01 12/02 12/03 12/04 12/05 12/06

2000 Study by Morgan Stanley

	S&P 500	EAFE
1970 - 1979	5.0%	10.1%
1980 - 1989	17.6%	22.8%
1990 - 1999	18.2%	7.3%
30 Years 1999	**13.4%**	**13.2%**
2000 - 2006	1.1%	4.7%
37 Years 2006	11.4%	11.5%
Net of fees (4bpsUS/40bps EAFE)	*11.4%*	*11.1%*

Annualized Returns

Total Return on KTRS Investments thru Fiscal Year End 2007

Year	S&P 500 Index	KTRS Stocks	Lehman Gov./Credit High Quality Index	KTRS Bonds	KTRS Real Estate	KTRS Total Portfolio
1 Year Return	20.6%	20.6%	5.7%	6.3%	8.2%	15.3%
5 Year Return	10.7%	10.7%	4.4%	4.7%	9.6%	8.5%
10 Year Return	7.1%	7.8%	6.0%	6.2%	9.3%	7.1%
15 Year Return	11.2%	11.5%	6.3%	6.6%	9.3%	8.8%
20 Year Return	10.8%	11.2%	N/A	7.5%	9.0%	9.1%

Teachers' Retirement System
of the State of Kentucky

Our Members Come First!

Reach us at . . .

1.800.618.1687

502.848.8500

www.ktrs.ky.gov

Protecting & Preserving Teachers' Retirement Benefits

Appendix F

Presentation from Office of Financial Management
and JP Morgan Chase at September 12, 2008 Meeting

Update Regarding Pension Obligation Bonds

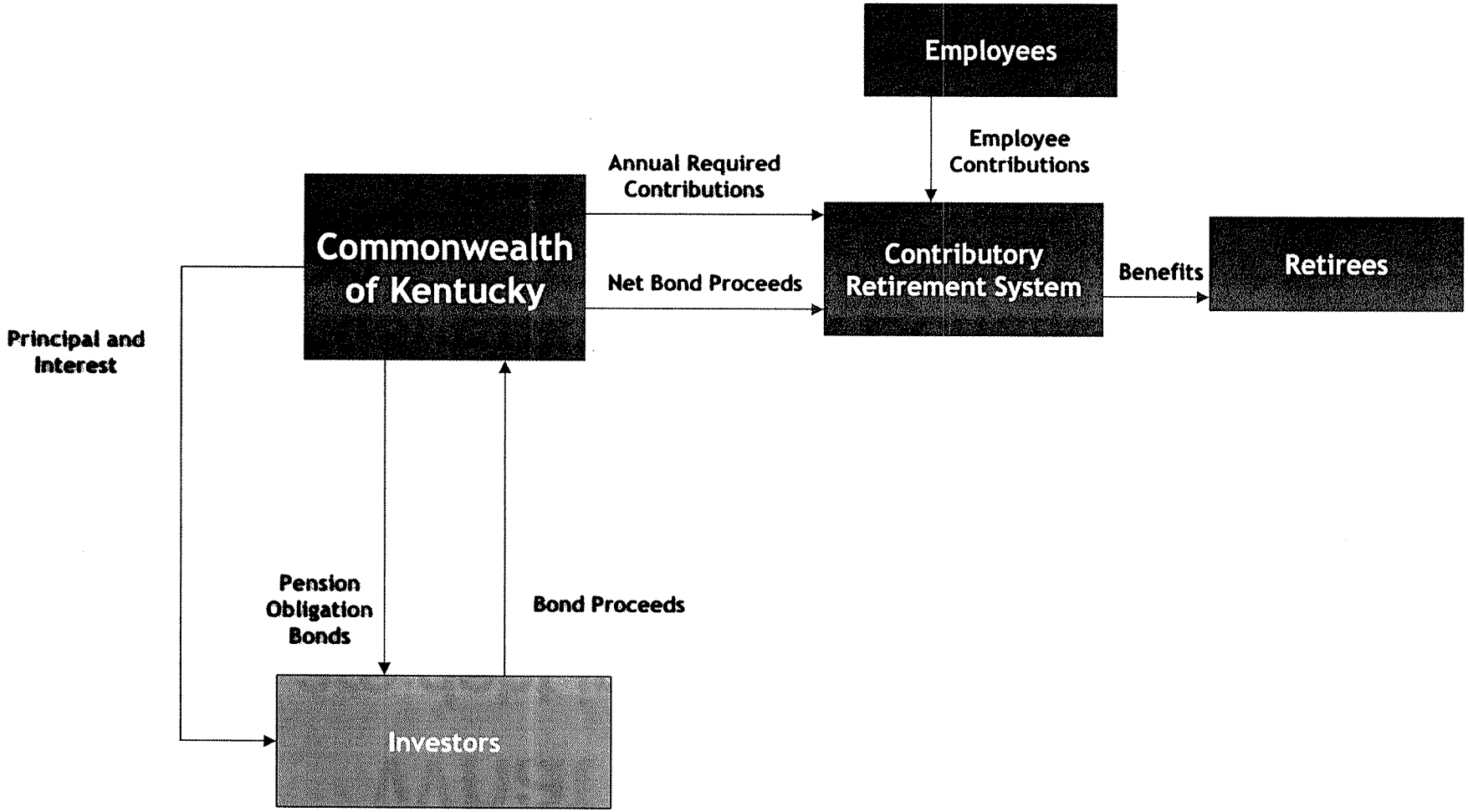
September 2008

Table of Contents

What are POBs?

- POBs are debt instruments issued by a governmental entity to fund all or a portion of the Unfunded Actuarially Accrued Liabilities ("UAAL") for pension and/or Other Post Employment Benefits ("OPEB").
- POBs convert a soft balance sheet liability to a hard balance sheet liability.
- Ultimate goal of POB is to lower funding cost for system

POB Mechanics



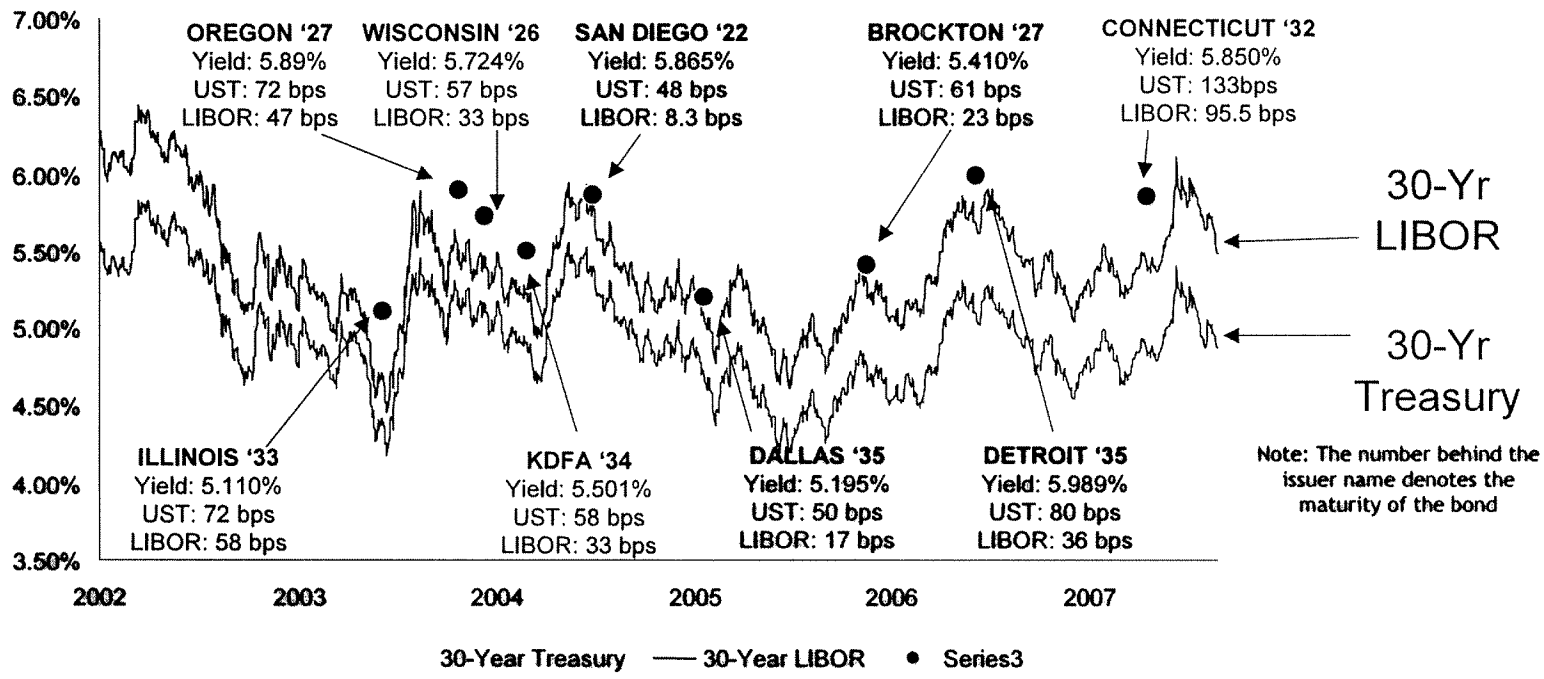
Who has issued POBs?

Year(s) Issued	Size ($mm)	Issuing Entity
State-level Entities		
1997	2,803	New Jersey
1996	773	NYS Dorm Authority
2002	1,795	Wisconsin
2003	10,000	Illinois
2004	500	Kansas
2002, 2003, 2004, 2005	2,628	Oregon School Boards Association
2008	1,589	Puerto Rico
2008	2,277	Connecticut
Pending	5,000	Alaska
Pending	200	Virgin Islands
Local Entities		
1986	461	Los Angeles Co-California
1994	1,965	Los Angeles County
1999	1,292	Philadelphia
2005	1,440	Detroit
2008	750	Denver Public Schools
2008	1,937	Chicago Transit Authority
Pending	400	Milwaukee County
Pending	400	Houston

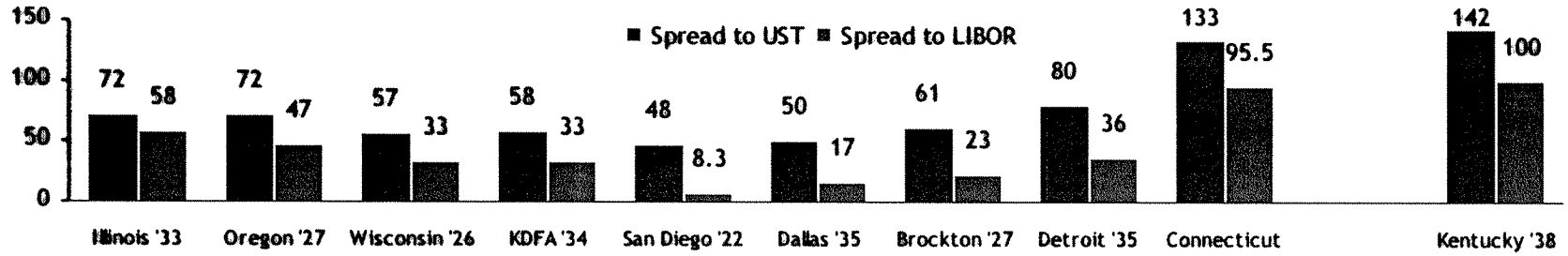
- Over 400 POB issues have been executed for a total par amount of $57.6 billion since 1986

Current Market Update

Credit spreads have widened for both municipals and corporates as risk is re-evaluated



Comparison of Spreads at Pricing to Appropriate Benchmark



Source: Final Pricing Wires

Current Market Update (continued)

- Broad investor demand both domestically and in Europe.
- Estimated all-in taxable 20-year funding cost of ~ 5.76%.
- Level Debt Service per $100 million borrowed:
  - 10 years = ~ $13.3 million annually
  - 20 years = ~ $8.60 million annually
- If actuarial investment returns of 7.50% can be achieved, the Commonwealth would realize 1.74% or $1.74 million in annual contribution savings ($34.8 million aggregate expected savings) per $100 million issued.

Benefits

- Provides cash to the Retirement Systems to invest now to lower the unfunded liability and meet future benefit payments.
- Discipline to budget annual debt service payments to cover the new obligation.
- Expected annual funding cost reductions between 15%-30% due to the difference between actuarial assumed (expected) return versus interest paid on the bonds.

Concerns and Risks

- The primary risk is that the actual return on the purchased investments is less than the cost of the debt over the life of the bonds.

- Reduced budget and financial flexibility in the event of an economic downturn that could impact other service levels.

Concerns and Risks (continued)

- Cannot be issued on a tax-exempt basis under the Internal Revenue Code.
- Need to be cognizant of crowding out capital projects
  - Be aware of debt capacity issues for budgetary planning
  - Note that POBs will be sold to different investors than those who buy the Commonwealth's tax-exempt bonds

Risks Associated with POBs

- Market Risk
- Political Risk
- Financial Risk
- Investment Risk

Risks Associated with POBs

Expected Savings Disclosure: ***Expected savings from a pension obligation or OPEB bond issue are based on actuarial assumptions for investment returns. A failure to meet investment returns will impact both the expected economics of the transaction and the unfunded balance of the entire system. JPMorgan can make no representation regarding the validity of the actuarial assumptions based on the actual investment allocations.***

Market Risk

- Investment returns need to exceed the interest rate on the bonds for the life of the debt (see investment risk below) to have positive financial results
- A pension bond transaction can only be viewed as a success or failure once the bonds are retired, not over the short term
- Issuing POBs when interest rates are low increases the potential for the return proceeds to exceed the cost of the debt
- Due to many factors, a UAAL may arise subsequent to the issuance of Pension Bonds
  - Revisit initial analysis to determine appropriate funding methodology for the new UAAL

Political Risk

- Poor investment returns can result in negative publicity. Good investment returns can result in an over funding of the system which could lead to political pressure to increase benefits.
- For many issuers of Pension Bonds, the POBs are their largest and most highly publicized bond offering
- Critics will emphasize the potential negative implications, despite many positive merits
  - Refinancing existing obligation
  - Generating expected savings over life of liability
  - Increasing strength of pension system
- Long-term nature of program must be maintained

Financial Risk

- Pension Bonds convert a soft liability into a hard liability. This will increase the reported debt burden for the Commonwealth, potentially reducing borrowing capacity
- All things being equal, Rating Agencies view Pension Bonds as a ratings neutral event
- The issuance of Pension Bonds should be considered within the overall context of the Commonwealth's financial situation
  - What is the impact on the Commonwealth's debt capacity?
  - The Bonds will be subject to appropriation
  - Will the POBs "crowd out" other infrastructure needs?
  - How will the fixed debt service cost impact the Commonwealth's budgetary flexibility?
  - What is the pattern of expected savings?
  - What is the expected funding level for the system?
  - How do the actuarial assumptions of the system compare to industry average?

Investment Risk

- A Pension Bond offering will generate significant proceeds to be invested at one time
- Short-term volatility in invested assets may impact the long-term viability of the structure
- Investors and rating agencies will want to be assured that the system has a sound plan for investment of funds
- The Commonwealth and the retirement system need to be coordinated with regard to the philosophy of reinvestment, including weighting the costs/benefits to alternative investment strategies

Rating Views

- The benchmark funding level for public pension funds is approximately 80% given the continuously moving assumptions associated with these liabilities.
- There are no real benchmarks for OPEB liabilities at the present time, due to limited reporting and volatility of these liabilities.
- A goal to steadily increase the percentage of the OPEB Annually Required Contribution would be viewed favorably.

Rating Views (continued)

- Pension/OPEB Bonds can be part of the solution:
  - Conversion of soft liability to a hard liability.
  - Will POBs debt service crowd out other pressing needs?
  - **Will there be checks and balances to avoid a return to inadequate funding levels?**
  - Has the state conducted a probability analysis that the assumed levels of return can be achieved versus fixed funding cost?

Rating Views (continued)

- Use of proceeds is the key issue: pay current benefits, i.e. a payment holiday?
- POBs will be included in the state's Net Tax Supported Debt computation by all three of the rating agencies.
  - Can the Commonwealth afford POBs and maintain existing rating?
- **Use of POBs alone should not result in a rating action if the funding plan is sound and well communicated.**

POB Issuance – Best Practices

- GFOA Recommended Practices
  - Legal authorization
  - Prudent funding of pension plans
  - Evaluation of risk
  - Provide adequate disclosure
  - In-depth financial analysis
  - Review of actuarial assumptions and projections

POB Issuance – Best Practices

- Market-Driven Recommended Practices: Multiple Actuaries
  - A number of states have an actuary on retainer to review proposed retirement legislation
    - E.g., Arkansas, Nebraska and Oklahoma
  - The use of multiple actuaries is standard practice in the United Kingdom. Each plan has its own actuary and an additional actuary is retained to represent the public interest
    - This concept is currently being explored by the actuarial profession in the United States
  - Increases confidence both internally and externally due to additional set of eyes

Accrued State Liability for KTRS Health Benefit Costs

- A refinancing of the "loans" from KTRS Pension System made for medical benefits shares some similarities to traditional POBs, as both would be issued in the taxable bond market
- These "loans" could be refinanced with bonds at lower interest costs
- The proceeds from the bond deal would be used to replenish the KTRS pension system

Potential Application of POBs: KTRS Pension System Provides "Loans" to Fund Medical Benefits

	FY 2005	FY 2006	FY 2007		FY 2008	FY 2009 Estimated	FY 2010 Estimated
Amount "Borrowed" from Pension Fund	**$29.2**	**$62.3**	**$73.0**	*	**$125.0**	**$125.0**	**$125.0**
Cumulative Borrowing		**$91.5**	**$164.5**		**$289.5**	**$414.5**	**$539.5**
(Amortized over 10 Years at 7.5%)							
Total Cost of "Loans" from Pension Fund	**$0.0**	**$4.2**	**$13.3**		**$23.9**	**$42.1**	**$60.3**

* $12 million from the FY 2006 General Fund Surplus reduced the borrowed amount.

- By refinancing these "loans" over a 10-year amortization, the Commonwealth could realize an interest cost of 5.37% (10-year rate) in the current market compared to the 7.50% rate it charges itself
- The Commonwealth could also consider modifying the term of this financing to meet other financial and policy goals

Future Considerations

- May require legislative action (enabling legislation and appropriation)
- **Issue debt only when borrowing rate achieves funding goals**
- Comprehensive actuarial review required
- Incorporate POBs into comprehensive funding plan
- Develop asset allocation strategy for new funds (both short-term and long-term)
- Design bond repayment structure
- Identify key bond/product tools
- Consider regular, independent performance reviews

Summary

- POBs are a viable tool for funding a portion of the Commonwealth's pension liabilities.
- POBs are not a silver bullet, but…
- If used as part of a comprehensive plan, and all other things being equal, POBs should not reduce the state's credit rating.

Appendix

Pension obligation bonds carry distinct credit implications

Impact on Credit

- Issuing POBs demonstrates a firm commitment to funding pensions which can be a sign of sound financial planning provided that they are accompanied by a clear POB plan with attainable actuarial and investment assumptions and a conservative structure
- However, rating agencies also evaluate the leverage added by POBs. Does it convert a soft liability into a hard liability (bond debt service)? And will this increase the debt burden and potentially reduce borrowing capacity?
- The issuance of pension bonds will be considered within the overall context of the Issuer's financial situation
  - Has the Commonwealth measured its aggregate liability?
  - What is the impact on the Issuer's debt capacity?
  - What is the security backing the Bonds?
  - *Will the POBs "crowd out" other capital needs?*
  - How will the fixed debt service cost impact the Commonwealth's budgetary flexibility?
  - What is the pattern of expected savings?
  - What is the expected funding level for the system?
  - How do the actuarial assumptions of the system compare to industry average?
- All things being equal, rating agencies view pension bonds as a ratings neutral event since they merely transfer a liability from one portion of the balance sheet to another

Source: Standard & Poor's www.ratingsdirect.com - *Pension Obligation Bonds Are Surging After Brief Hiatus*, published 1/20/2004

Moody's View of POBs (11/16/04)

- "Moody's believes the issuance of pension obligation bonds is one effective way of addressing an unfunded liability. Since POBs reduce the cost of funding an unfunded liability, their issuance is not by itself a credit weakness. However, the planning and analysis conducted by a local government as part of the decision to grant expanded benefits, the government's plan for funding any unfunded pension liability, and its ability and willingness to budget appropriately for any attendant higher costs, are reflective of the quality of the government's overall financial management."

Source: Moody's www.moodys.com

Pension obligation bonds carry distinct credit implications (continued)

S&P's Recent Credit View Update (1/23/2008)

- In their latest report on POBs S&P states that "POBs could have a negative impact on credit quality if they were structured poorly."
- The following bullets provide a brief summary of S&P's views with respect to the rating process, as expressed in the January 23, 2008 update
- "In our analysis of POBs, we focus on the bonds' effect on the issuer's debt structure and the ability to meet obligations."
- "The Financial review includes the impact on both the balance sheet and the operating statement or cash flows. The status of the issuer's pension trust fund on a pro forma basis is also part of the review."
- From the balance sheet perspective S&P evaluates:
  - How the POBs fit into the issuer's total debt structure?
  - How much leverage is added through the issuance of POBs?
  - **Can subpar investment returns put upward pressure on pension contribution rates and higher contribution rates together with POB debt service strain the issuer's budget?**
  - Does the POB issue have an impact on statutory debt limits or does it impede debt issuance for any capital plans?
- From a cash flow standpoint S&P evaluates:
  - Projected debt service and contribution costs, with and without POBs
  - The validity of the POB transactions underlying assumptions such as interest cost and investment returns
- "As part of the POB analysis, we also review the status of the pension trust fund, which receives the bond proceeds:
  - What is the statutory and regulatory relationship between the issuer/employer and the pension fund?
  - How have the laws and precedents for contributing affected funding progress, and how do they play into the POB strategy?
  - What are the funding goals and how will the POB affect these objectives?"

Appendix G

Frequently Used Terms

Frequently Used Terms:

Actuary: A professional mathematician or statistician who utilizes statistics and mathematical modeling in order to predict future expectations based on previous occurrences.

- Actuaries utilize certain assumptions in order to project future costs
- "True" or future costs are estimated based on expenses and the value of benefits paid overtime
- Once the "true" cost is determined, actuaries then create a funding schedule to pay for those costs overtime.

Actuarial Assumptions: Estimates based on previous occurrences for various demographic and economic changes that will occur overtime to impact the total value of pension benefits owed. Examples include:

- Decremental Assumptions include: withdrawals, death while active, disability, retirement and death after retirement.
- Economic Assumptions include: the rate of inflation, real return on assets, salary increases and cost of living adjustments on benefits.

Actuarial Valuation Methods: Actuaries can employ a number of valuation methods in order to provide an estimate of pension obligations, these methods are governed by the Actuarial Standards Board and outlined in the Actuarial Standards of Practice. The board states that, "the selection of economic and noneconomic assumptions, the actuarial cost method, and the asset valuation method are all key elements in the valuation of pension obligations," (Actuarial Standard of Practice No. 4 "Measuring Pension Obligations and Determining Pension Plan Costs or Contributions").

Amortization Period: The span of time which is determined to fully pay for actuarially accrued liabilities. Generally Accepting Accounting Principles dictate that the period is not to exceed thirty years.

Actuarially Required Contribution (ARC): The amount of money actuaries determine must be paid by the employer on a yearly basis in order to pay for benefits by the end of the amortization period. The ARC is a budgeting function which employs two key rates:

- Normal cost: the cost of benefits earned by employees in that year
- An additional cost which allows the employer to reduce the unfunded costs of previous service

Arbitrage: The simultaneous purchase and sale of assets that takes advantage of a difference in price, risk or rate of interest.

Assets: Money already available to the retirement system to fund pension and healthcare benefits. Assets are comprised of employee contributions, employer contributions and investment earnings. Investment earnings constitute the largest portion of assets for public pension funds nationally (approximately 60%).

Employer Contribution: The amount of money which the employer contributes toward employee retirement and healthcare benefits on an annual basis, as a percentage of payroll.

Employee Contribution: The amount of money contributed by an individual employee toward their retirement or healthcare benefits computed on an annual basis, as a percentage of payroll.

GASB 43 & 45: Government Accounting Standards Board statement #43 establishes uniform standards for post-employment benefits other than pensions. Statement #45 improves the relevance of financial reporting by implementing accrual based measurement, and requires that accrued liabilities be listed at present value. These statements constitute accounting "best practices" are were implemented so that decision makers and plan administrators would begin to evaluate the "true" cost of OPEBs as they are already valued for pension benefits.

Hard Vs. Soft Debt: Both hard and soft debts are recorded as accounting liabilities. Soft debt (like the annual contribution rate) is amortized over a period of years and is based on various assumptions and assumed rates of interest which can change over time; by contrast, a hard debt is a direct debt and accrues interest (like a loan).

Other Post Employment Benefits (OPEB): Benefits other than pension which are offered to employees after retirement, including:

- Dental
- Vision
- Prescription Drugs
- Medical Benefits
- Life Insurance

Pay-as-you-go: A method of funding pension and OPEB benefits where the amount contributed by employees and employers is equal to the amount currently due and must be paid to retirees

Pension Obligation Bond (POB): A debt instrument issued by a governmental entity to fund all or a portion of the unfunded actuarial liabilities for pension and/or OPEBs.

Unfunded Accrued Liability (UAL): The value of the unfunded obligation for past service. The UAL is the measure of difference between the currently accrued liability and the actuarial value of plan assets.

Valuation Rate: The estimated worth of assets. The actuarial valuation process employs actuarial assumptions and is diagrammed in Figure 8.

Figure 8